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ABSTRACT

This collection of papers is divided into three parts. After "Introduction," (Judith A. Muyskens), Part 1, "Issues in Teaching with Technology: Implications for the Future Training of Teaching Assistants," includes "Exploring the Link between Teaching and Technology: An Approach to TA Development" (Virginia M. Scott) and "A Revolution from Above: The Race for Technology in Foreign Languages" (Winnifred Adolph and Leona LeBlanc). Part 2, "Applications and Case Studies in Technology and Foreign Language Education," includes "Enhancing Foreign Culture Learning through Electronic Discussion" (Elizabeth Bernhardt and Michael Kamil); "Technology, Social Interaction, and FL Literacy" (Richard G. Kern); "Write to Speak: The Effects of Electronic Communication on the Oral Achievement of Fourth Semester French Students" (Margaret Healy Beauvois); and "Remote Access for Foreign or Second Language Acquisition: New Interpretations of Distance Learning" (Michael Graham Fast). Part 3, "Learning, Foreign Languages, and Technology," includes "Personality and Motivational Factors in Computer-Mediated Foreign Language Communication (CMFLC) (Lydie E. Meunier) and "Cognition, Context, and Computers: Factors in Effective Foreign Language Learning" (Judith G. Frommer). (Papers contain references.) (SM)

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AAUSC
Issues in Language Program Direction
*A Series of Annual Volumes*

# New Ways of Learning and Teaching: Focus on Technology and Foreign Language Education

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# *New Ways of Learning and Teaching: Focus on Technology and Foreign Language Education*

***Judith A. Muyskens***
***Editor***

# American Association of University Supervisors, Coordinators, and Directors of Foreign Language Programs (AAUSC)

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## A Series of Annual Volumes

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# New Ways of Learning and Teaching: Focus on Technology and Foreign Language Education

*Judith A. Muyskens*
*Editor*

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# Contents

*Acknowledgments* *vii*

Introduction *ix*
*Judith A. Muyskens*

## I. Issues in Teaching with Technology: Implications for the Future Training of Teaching Assistants

Exploring the Link Between Teaching and Technology: An Approach to TA Development *3*
*Virginia M. Scott*

A Revolution from Above: The Race for Technology in Foreign Languages *19*
*Winnifred Adolph and Leona LeBlanc*

## II. Applications and Case Studies in Technology and Foreign Language Education

Enhancing Foreign Culture Learning through Electronic Discussion *39*
*Elizabeth Bernhardt and Michael Kamil*

Technology, Social Interaction, and FL Literacy *57*
*Richard G. Kern*

Write to Speak: The Effects of Electronic Communication on the Oral Achievement of Fourth Semester French Students *93*
*Margaret Healy Beauvois*

Remote Access for Foreign or Second Language Acquisition: New Interpretations of Distance Learning *117*
*Michael Graham Fast*

## III. Learning, Foreign Languages, and Technology

Personality and Motivational Factors in Computer-Mediated Foreign Language Communication (CMFLC) 145
*Lydie E. Meunier*

Cognition, Context, and Computers: Factors in Effective Foreign Language Learning 199
*Judith G. Frommer*

*Contributors* 225

*AAUSC Style Sheet for Authors*

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*Judith Muyskens*
*Editor*

# Introduction

*Judith A. Muyskens*
*University of Cincinnati*

The eighth volume of the AAUSC series uses "change" as its driving theme. It focuses specifically on technology and its effects on our academic endeavors of teaching and learning foreign languages. Prospective authors were challenged with the following questions: What is the future of foreign language instruction as we know it in the light of the information revolution? Will we see our content emphasis broaden or shift? Will we raise our expectations for student achievement in skill areas? How effective will foreign language learning be using the new technologies? Will the foreign language profession be prepared to meet the demands of students who are sophisticated in their experience with technology? Who will prepare the new multimedia materials? How will we train professors for the future in light of the information revolution and technological advances? What effects will the new technologies have on TA (Teaching Assistant) training programs and multisection courses? Although it is still too early to answer many of these questions, the articles in this volume are an excellent addition to a discussion that will continue for years to come.

The volume is organized into three sections: The first section contains two chapters focusing on the changing paradigm in language instruction and the training of future faculty and teaching assistants. The second section, the longest, provides applications and case studies where technology is being used for language learning in four different contexts. The last section focuses on the individual learner, learning, and technology in foreign language study.

## Overview of Articles

The articles in the first section discuss the impact of technology on the future of foreign language teaching from two very different perspectives. In the first article entitled "Exploring the Link Between Teaching and Technology: An Approach to TA Development," Virginia Scott contends that foreign language program coordinators today have an *obligation* to prepare graduate teaching assistants to use technology. Rather than focusing attention on specific computer-assisted language applications, her paper argues that technology can provide an opportunity for re-examining theories about foreign language learning. She begins with a review of the paradigm shift that technology has brought on the foreign language teaching profession and presents a model for TA development, within the tenets of the new paradigm, that uses technology to encourage TAs to frame the theoretical questions that ought to inform their pedagogy.

In the second article, "A Revolution from Above: The Race for Technology in Foreign Languages," Winnifred Adolph and Leona LeBlanc believe that increased expectations from higher education constituencies *demand* that foreign language program directors embrace new technology without option. This article describes how the introduction of computer technology in one department was the result of mandates from authorities outside the department and how faculty, staff, and students responded to these mandates. Among the issues raised by the introduction of computer technology were the following: fear of technology, choice and maintenance of equipment and facilities, impact on the curriculum, and training of future faculty. The authors challenge colleagues to reflect about our motives and goals in participating in this technological revolution.

The second section, which provides applications and case studies in situations where technology is being used, contains four articles. In "Enhancing Foreign Culture Learning through Electronic Discussion," Elizabeth Bernhardt and Michael Kamil describe how, in the language classroom, culture, form, and content are not closely aligned. They point out that the conceptual knowledge that the learners have at hand is much richer than the linguistic structures available to them. Their paper explicates a use of technology targeted at realigning conceptual knowledge and new knowledge regarding cultural issues. It explains how electronic discussion groups held in English facilitated the learning of culture and, thereby, enhanced student affective and cognitive performance in an elementary German class.

Richard Kern's article, "Technology, Social Interaction, and FL Literacy," focuses on the growing use of local and global computer networks for language learning. He points out that computer networks potentially expand the number and diversity of people with whom language learners can communicate, and that they influence the ways in which people use language to interact with one another. This article focuses on three "social" uses of computer technology—synchronous conferencing, e-mail, and MOOs (Multiple user domains Object Oriented)—which present new opportunities for reorganizing classroom interaction, for extending person-to-person communication to worlds beyond the classroom, and for developing literacy and cultural literacy among foreign language learners.

Margaret Beauvois's article, "Write to Speak: The Effects of Electronic Communication on the Oral Achievement of Fourth Semester French Students," describes the effects of electronic communication (a local area network and a communication software module, *InterChange*) on the oral achievement of university French students in their fourth and final semester of the required two-year foreign language sequence. In her pilot study, an experimental group of two sections went to the computer lab one class period per week for an electronic (written) "discussion" as part of the regular curriculum of the course. The two sections composing the control group spent the same time per week in oral discussion on the same topics in the classroom. The data resulting from three oral exams given over the semester showed a significant difference in the experimental group's grade average over the control group's grade average. Her finding suggests a link between written electronic communication and the enhancement of oral skills in a second language.

In the last article in this section, "Remote Access for Foreign or Second Language Acquisition: New Interpretations of Distance Learning," Michael Fast provides an overview of how recent developments in digital communications technologies, ranging from fiber-optic cabling, the Internet and related networked information services, dynamic and delayed forms of interpersonal computer communication, to virtual reality technologies and interactive television, have implications for curriculum design, materials design, and instructional delivery of potentially far-reaching consequences. His article describes four distinct models of distance education as they may be applied to second language instruction. While the four models are not intended as mutually exclusive systems, they do represent somewhat different interpretations of the term distance learning. These models are discussed in the light of contemporary second language pedagogy, which is characterized by its focus on the development of communication skills. He suggests that at the broader curricular level a radically different interpretation of the time and space of the classroom is beginning to emerge.

The articles in the third part of the book focus primarily on the individual learner or learning on a more individual level. Lydie Meunier's article entitled "Personality and Motivational Factors in Computer-Mediated Foreign Language Communication (CMFLC)" investigates the role played by students' personality, motivation, and attitude in computer-mediated foreign language communication. Her paper reviews previous research on motivation in foreign language instruction and examines motivational factors reported to date in computer-mediated communication. She presents the design and results of an empirical study and offers pedagogical suggestions. The goal of her research is to provide recommendations for addressing individual differences in networked computer-mediated foreign language communication.

Judith Frommer in "Cognition, Context, and Computers: Factors in Effective Foreign Language Learning" suggests that the computer can make a valuable contribution to language learning because of its capacity to provide a richer context than previously possible. She discusses the concepts of cognition, memory, and context in order to highlight those aspects of computer activities that can enhance retention and understanding of a foreign language and culture. She describes how recent research has established a relationship between "knowing" and functions that were previously associated with emotions or senses. She notes that memory is increasingly thought to be based on multiple stimuli and mental images, which arise from various types of contexts. She believes that computers and multimedia technology can provide richer and broader contexts to aid learning and that those media allow students to assume responsibility for their own learning. She points out that the computer can involve the student with authentic language in a truly or virtually authentic linguistic and cultural context, which according to what is currently known about cognition, fosters acquisition of a foreign language and understanding of its cultures.

## Conclusion

This volume proposes a vision for new ways of learning and teaching with some possible strategies for arriving at that vision. It will now become part of a tradition of articles that contribute to the stimulating debate on the future of technology in education. One has only to open any recent volume of *Change* magazine, the *Chronicle of Higher Education*, or any one of our profession's own journals or publications to become a "participant" in this dialogue. It is, of course, too early to predict the structures of learning and teaching in the 21st century and to situate foreign language education in this structure. Futurists have predicted that in the virtual college of the future, students will receive electronic lectures, obtain readings, contribute to discussions, and send e-mail messages from their homes. They have described virtual learning situations where students learn, for example, about Japan through the World Wide Web and practice Japanese with a native speaker in a virtual setting. Other futurists have pondered the demise of the language teaching profession because of language translation software such as those that already exist translating from Japanese to German.

University administrators are talking about the 21st century as an era in higher education that is transformational or revolutionary because of the new learning models being predicted. The authors in this volume each provide some view of how technology is presently impacting or will impact our profession. They foresee changes in our teaching and learning models because of technology. As we look to the future, what is important for us as TA trainers and foreign language educators is to be prepared for the advances that computers and technology will bring to the academic endeavor. We can be pioneers, however, while still taking some cautionary looks before leaping onto the closest and latest out-of-control bandwagon. We do not need to become Luddites, but we do need to partake in a healthy debate on what technology can bring to our profession. We need to use technology for a strategic "leg up" which, in our case, means to enhance the learning of our students. In the future, through technology, we may be able to raise our expectations for student achievement in some areas (e.g., literacy and cultural literacy). We may be able to add depth and/or breadth to our content in other skill areas (e.g., reading and writing). In fact, technology might enable us to address individual differences and individual learning styles. What we need, as a profession, is a plan of study and attack. This volume contributes to that cause.

Part 1

# Issues in Teaching with Technology: Implications for the Future Training of Teaching Assistants

# Exploring the Link Between Teaching and Technology: An Approach to TA Development

*Virginia M. Scott*
*Vanderbilt University*

As foreign language program coordinators we have an obligation to prepare graduate teaching assistants (TAs) to use technology. Yet, often we feel inundated with technological options and are in a continuous process of trying to understand how and where the new media fit. In fact, it is frequently an overwhelming challenge to be pedagogically correct (PC) as we design curricula and supervise TAs. Viewed in this way, technology is, in many instances, a burden rather than an aid. In order to present a more positive and functional perspective, I propose in this paper that technology can provide an opportunity for reexamining teaching and learning. Rather than focusing our attention on becoming familiar with various kinds of computer-assisted language learning (CALL) applications, I believe we should use technology to explore theories about how students learn a foreign language (FL). To explain this technology model for TA development I will first describe a paradigm shift that is effecting changes in FL teaching, then argue that TAs need to acquire skills for thinking critically about FL teaching and learning according to the tenets of the new paradigm, and finally propose that technology provides an ideal means for exploring current pedagogical theories.

## From Teaching to Learning: a Paradigm Shift

Most TAs in FL begin their graduate studies with little sense of the history that has shaped our profession. Their view of current classroom practice is often defined by how they, themselves, have been taught rather than through a critical examination of FL pedagogy. In order to provide historical context, it is useful to begin by reviewing the shift that has occurred in the educational paradigm. During the years since the Second World War there has been a dramatic change in how we view learning. The behaviorist view of learning prevalent during the '50s and '60s emphasized stimulus-response conditioning. In this view language was learned by imitation and the FL teacher served as the source of input. Student behavior was reinforced through practice and drill. Ultimately, learning was something that "happened" to students; the source of learning came from outside and students were viewed as *reactive*. During the '70s and '80s, a cognitive view of learning gradually replaced the behaviorist view. In this view, language is acquired through cognitive processes that are inherent in the human mind. The learner is *active* in the learning process and the teacher serves as a facilitator or advance organizer.[1] This dramatic change in view of how language is learned brought about a change in the FL teaching paradigm.

During the past two decades many FL teachers have begun to rethink how to teach grammar, how to balance listening, speaking, reading, and writing, how to teach culture in our multicultural world, and much more. The practice and drill teaching strategies of the Audiolingual Method are no longer valid in a time when communicative language teaching and proficiency-oriented instruction are commonly endorsed. This shift in paradigm is outlined explicitly by Swaffar, Arens, and Byrnes (1991) in *Reading for Meaning: An Integrated Approach to Language Learning.* With regard to materials and techniques for language courses, they note a shift from culturally neutralized dialogues to personalized language, from discrete practice of grammar rules to an integrative use of grammar linked to meaning, from vocabulary lists to be memorized and largely cued by translation to vocabulary understood and cued in the FL context. Similarly, for upper-division courses, they outline curricular changes and additions in terms of a shift from teaching literature as genres and periods to teaching literature as part of cultural values with a focus on themes and intertextuality, and from language for sentence-level accuracy to a pragmatic use of language in double majors, career tracks, and study abroad (Swaffar, Arens, and Byrnes 1991, pp.12–13).

This shift in paradigm is not unique to the FL profession. In a recent article in *Change* magazine entitled "From Teaching to Learning—A New Paradigm for Undergraduate Education," Barr and Tagg (1995) challenge American colleges to shift their focus from an "instruction" to a "learning" paradigm. They point out that colleges have traditionally operated according to the instruction paradigm, in which the emphasis is placed on delivering instruction, or transferring knowledge from teacher to student. In their view, most colleges have defined their primary purpose according to this focus and have evaluated their effectiveness according to the quality of the instruction. However, they contend that this traditional approach is no longer valid and that colleges should redefine their purpose according to the learning paradigm in which the focus is on creating environments and experiences that lead students to discover and construct knowledge for themselves. The authors refer to "Learning Paradigm colleges" as being concerned with learning productivity rather than teaching productivity, where teachers are the designers of learning environments, and where effectiveness is measured by the quality of student learning.

In her introduction to the 1995 AAUSC volume, Kramsch's assessment of FL education echos that of Barr and Tagg:

> Teaching is often seen as "conveying information," "delivering foreign language instruction," while leaving one's own views and the views of the students out of the picture (Kramsch 1995, p. ix).
>
> What is happening in academia is no less than a tidal wave of self-questioning regarding the nature and role of the disciplinary knowledge produced, preserved, and transmitted by the academy (Kramsch 1995, p. xiv).

Furthermore, Kramsch describes the paradigm shift in academia as having four components:

1) an ideological shift brought about by a change in our world view—"truths" and conceptual systems that were once accepted are being harshly challenged;
2) a demographic shift, brought about by an increasingly multicultural composition of our society;
3) a disciplinary shift, brought about by the growing influence of social and cognitive sciences; and
4) a technological shift, brought about by the electronic revolution with its unlimited sources of information.

In her view, "these four developments of the last decades constitute major upheavals that are shaking at the foundations of the old idea of the university" (Kramsch 1995, p. v).

## TA Development in the New Paradigm

In Lange's view, this shift in paradigm has brought about a curricular crisis. He notes that there are several contending theories of foreign language learning that exist in theory and not in practice: "The practice is still the learning and teaching of language as rule-governed linguistic behavior" (Lange 1994, p. 13). Moreover, he points out that the profession has been resistant to change and "teacher educators continue to work with the tried-and-true methods" (Lange 1994, p. 14). In order for us to avoid perpetuating this tendency, it is important that TAs understand the nature of the paradigm shift and its impact on classroom practice. Kern (1995a) points out that the language program director's task includes broadening TAs' perception of what language teaching is all about:

> Many TAs come to us with a notion that language teaching is primarily drill instruction (most likely because that is what they remember from their own early foreign language learning experiences). We can show them that their role is much more significant than they may expect . . . [and] involves socializing students into new ways of thinking about meaning and communication (Kern 1995a, p. 85).

Clearly, one of the most important goals of the TA supervisor is to provide a context for current practice and to help each TA think critically about teaching and learning.

Typically, TA training involves studying theories and research regarding how students learn, or acquire, a foreign language. For example, theories concerning such issues as the nature of teacher input, error correction strategies, motivation, learning strategies, top-down and bottom-up processing, and the role of grammar instruction in language acquisition are essential to understanding effective FL teaching. In helping TAs understand and implement these theories, supervisors often subscribe to one of several models for TA development. Kinginger (1995) proposes a "reflective" model of TA education in which teaching is not portrayed as simply a skill, but also as a continuous process of analyzing theory and research as they relate to teaching. Similarly, Wildner-Bassett (1992) proposes that beginning TAs can benefit from keeping journals in which they discuss various aspects of their experiences. She suggests that with this type of introspection about teaching, TAs can better understand many things, including the fact that professional development is an ongoing process. Tedick and Walker caution against "a paralyzing focus on methodology" (1995, p. 502) that encourages teachers to concentrate on the **how** of language teaching rather than questioning the

**why** and **what**. While these models for TA development differ slightly, they share a commitment to engage TAs in a critical examination of how students learn and how those theories are translated into classroom practice.

## The Technology Model for TA Development

As a complement to the TA development models cited in the previous section, I would suggest that technology can serve as an entry point for thinking critically about teaching and learning. Rather than learning how to use specific computer-assisted language learning (CALL) applications, TAs can learn how to analyze CALL to examine the underlying pedagogical theories. Just as adopting a new textbook forces teachers to question how to teach and test students, TAs can use a CALL program to frame these same questions.

The first step in implementing the technology model involves exposing TAs to general principles about technology. To begin with, the use of technology often implies a change in teacher and student roles. As Patrikis (1995) points out, often teachers use new tools but then neglect to move beyond "traditional notions of teacher, tutor, and tester" (Patrikis 1995, p. 37). He challenges the profession to use CALL to explore new possibilities for teaching and learning:

> With the explosion of the walls of classroom learning, it should be evident that the traditional roles of teacher and student are likely to change dramatically. As many colleagues acknowledge, the teacher will become a designer of tasks: he or she will no longer direct what students do but instead will create an environment of expectation and of possibility, where students are responsible for what and how they learn. I would like to pause, for a moment, on the word *responsible*. The term *responsibility* gives new, and perhaps higher, sense to the notion of a student-centered course. This *responsibility* entails the willingness and the duty of students to assume control of their learning and of their capacity to provide answers. In other words, it requires them to respond to their own intellectual needs . . . (Patrikis 1995, p. 38).

Noblitt concurs with Patrikis, stating that "the instructor's goal in the new learning environment will thus be to provide expert guidance, facilitation, and mentoring" (Noblitt 1995, p. 289). In this view, the use of technology encourages students to be *inter*active since they must understand the learning tasks as well as the relationship between the tasks and the topic or goal.

In addition to changing roles, TAs must examine the kinds of learning that can be invoked by the use of technology. Noblitt (1995, pp. 282–283) identifies three basic learning modes:

- *the sequential learning mode,* in which it is important to maintain the integrity, or semi-linearity, of the object of study;
- *the relational learning mode,* in which students explore information and discover relationships with other areas of knowledge in a non-linear way;
- *the creative learning mode,* in which the student must apply what is learned.

For the sequential learning mode, instructional technology that presents material in a linear fashion, such as videos or software programs that reinforce what is being taught in the classroom, would be appropriate. For the relational learning mode, information technology, such as the Internet, might be best. Finally, for the creative learning mode, communication technology, such as e-mail or software programs for listening, reading, and writing, would be preferable.[2]

Once TAs are familiar with general principles regarding teaching with technology, they can begin to explore specific CALL applications to determine the underlying pedagogical theory. For example, a close analysis of the computer program for writing in French, *système-D* (Noblitt, Willem, and Pet 1992), leads to fundamental questions about what is involved in writing in a foreign language. This program, which includes a bilingual dictionary, a verb conjugator, and three indices for grammar, phrases, and vocabulary, evokes questions, such as: Is it good pedagogy to allow students access to information that may not have been explicitly taught? What level of language proficiency should students have before using it? What characterizes good writing? What strategies characterize good writers? Will students learn to write autonomously if they have this kind of grammatical and lexical support?

As another example, TAs might examine *Nouvelles Dimensions* (Noblitt and Wolf 1995), an interactive multimedia program for developing listening comprehension and cultural awareness. This program requires an analysis of how students learn to understand authentic speech and subtle cultural information: Does having access to transcriptions and translations of each video clip enhance the development of listening comprehension? Do the guiding questions about each video clip sensitize students to subtle gestures and facial expressions? Would students benefit more from working alone or in small groups? Do the video clips and exercises engage the students over time?

More often than not, these questions have no simple answers. Challenging TAs to find the answers can be a valuable dimension of professional development. In fact, Tedick and Walker (1995) contend that research skills are an essential part of the development of new teachers and that it is important for them to seek answers to their questions by doing research. Empirical research on technology does not have to be elaborate or difficult. Qualitative research might simply involve describing what students actually *do* when they are using a given software program.[3] Or, it might involve questionnaires to determine student reaction to using a given software program.[4] Quantitative studies might involve comparing test scores before and after using a software program, or perhaps comparing the performance of students in one section that uses technology and one that does not. These kinds of informal empirical research experiments can be invaluable to a TA's approach to teaching. They may also provide insight that can benefit the profession. Pusack and Otto (1995) note that with regard to technology descriptive research and case studies are extremely valuable. Finally, encouraging TAs to engage in these kinds of research can respond to Noblitt's challenge that ". . . the future learning specialist must bring an understanding of the *educational uses of the media* to the learning environment" (Noblitt 1995, p. 226).

## Case Studies

In the undergraduate French language and literature program at Vanderbilt University, several kinds of technology are fully integrated into the curriculum. That is, many of the courses provide opportunities for students to use technology, and some courses actually require students to use it. For example, in the elementary-level course, students can choose either a traditional workbook or a CD-ROM workbook.[5] Another option for first-year students is *Nouvelles Dimensions* (Noblitt and Wolf 1995), an interactive multimedia program for developing listening comprehension and cultural awareness. In the elementary and intermediate level language programs, all students are required to use *système-D* (Noblitt, Solá, and Pet 1992), a computer program for writing in French.[6] Students in phonetics are required to use an interactive computer program to practice aural discrimination and phonetic transcription.[7] Students of literature often have the option of reading texts in a hypertext mode on a computer with opportunities to access cultural and linguistic information.[8] Advanced-level conversation students must use *À la rencontre de Philippe* (Furstenberg 1993), an interactive multimedia program for developing listening comprehension and cultural awareness. In addition, advanced-level language and literature students may use the *Correcteur 101*, an interactive computer program for checking the grammatical and lexical accuracy of compositions, and *Cinéinteractive*, an interactive computer program for viewing films while developing both linguistic and cultural awareness.

Many of these courses are taught by TAs who are teaching for the first time and must face both the challenges of traditional classroom teaching and the use of various technologies. All the TAs were asked to reflect on how using technology had affected their teaching. The responses from five TAs, all of whom have taken a graduate course on the methodology of foreign language teaching at Vanderbilt University, demonstrate how teaching with technology helps them continue to think critically about various aspects of teaching and learning[9]:

1) Leah Tolbert Lyons, M.A. student, TA in first-semester French.

   I oriented my students to the *Rosetta Stone* CD-ROM software in response to their request for extra help with speaking, listening, and reading. By introducing this software to my students, my role has changed; in fact, I am redefining my role continually. I am no longer in full control of what my students are learning and this has caused me to evaluate at least two things: the place in the classroom for information found outside the classroom and the method of error correction I should use when such information is used incorrectly. Should the teacher take an active role in seeking out what students have found during their technological experimentation? And should that information be brought to the classroom on a strictly voluntary basis? How should I deal with a student who has a question or a comment about an idiomatic expression right in the middle of my perfectly planned lesson on regular *-er* verbs? And, if students do use information gained through use of the program on quizzes and exams, should they be penalized for incorrect usage even though they haven't actually been taught the information? If so, how will this change the students' attitudes toward risk taking?

2) Richard Espénant, M.A. student, TA in second-semester French.

   My students use *système-D* to write compositions and with this software they can access, at any time, grammatical and lexical information accompanied by several examples. As I watch my students use the French expressions in *système-D* and try to compose a text, I wonder about the role of translation in writing. I also wonder about how

French stylistics are different from English stylistics. In addition, I think about the role of writing in a language program that places emphasis on communicative language teaching. The methods of teaching that I encountered in French educational institutions placed an emphasis on grammar through different kinds of written drills. When I grade my students' compositions written with *système-D*, I find myself thinking of these various dimensions.

3) Jennifer C. Gilbert, M.A. student, high school French teacher.

I conducted research in two upper-level French classes at the University School of Nashville, a private high school. My objective was to study the reading process by having one group of students read a text in a traditional print medium and a second group read the text in a hypertext computer medium. The focus of this study was to determine whether technology effectively promotes students' comprehension and retention of texts read in the target language.

In the course of this empirical research, I began to view reading from a different perspective. My experience working with technology in this study prompted me to rethink the strategies I use to teach reading in my classes. In particular, I considered the notion of background knowledge and ways of assessing comprehension. Consequently, I am much more aware of how I teach and assess reading in my classes.

4) Margaret Splane, Ph.D student, TA in second-semester French.

When students write compositions with *système-D*, they employ a greater variety of vocabulary and idiomatic expressions and generally a greater quantity of ideas than compositions written without the program. However the occurrence of grammatical errors is not infrequent. By encouraging students to explore the French language and by making available to them vocabulary, colloquial expressions, and grammatical structures to which students have never before been exposed (in class or in their textbook), *système-D* makes second-semester students especially prone to using the language incorrectly. In a certain respect, *système-D* is a trade-off and causes one to seriously consider the importance of content and communication as opposed to flawless manipulation of grammar structures. As a result, I now have a tendency to focus more on the content of my students' compositions and I have begun to set higher standards and to expect better compositions. *système-D* has led me to realize that second-semester French students are, in fact, capable of writing interesting, entertaining compositions that even native speakers are able to comprehend and enjoy, despite the grammatical errors. I think that my experience with this software has caused me to place greater value on the theory that one learns through the mistakes one makes.

5) Lara Semones, Ph.D student, TA in second-semester French.

I used *Nouvelles Dimensions* in elementary French to capitalize upon different grammar structures, reinforce vocabulary, and most importantly to encourage students to apply the language. However, the real question I asked myself was "what did this computer program provide that I could not give the students myself?" Ironically, the response was within the rhetorical question itself. What I found most helpful was that *Nouvelles Dimensions* seemed capable of setting into motion everything that we practiced in class. In short, it was a true test of the students' communicative skills. Even if my particular focus was on vocabulary, the students were also exposed to authentic culture, context, and meaning in ways in which neither I nor a textbook could ever begin to provide for them.

Using this multimedia program in the classroom gave me a real feeling of success. Afterwards, however, came an entire rethinking process. For instance, why were the students so receptive to this program? What did it provide for them that the textbook had not? What could I, the instructor, be doing in class to reinforce this positive experience? Although I am not certain that I have answers to these questions, the simple fact is that I have begun asking these things of myself and of my materials. I found myself reevaluating my role as the "facilitator of knowledge." I became, more or less, another link in the chain that connected the students with another language and culture. In addition, I felt that somehow the program legitimized and accentuated my lesson plans. The students seemed to be reminded that French was not just something "out there somewhere," but rather it was within their reach, easily accessed, and worth pursuing.

## Conclusions

It is likely that technology will exert an increasingly important influence on pedagogy. The principles that characterize the new paradigm for FL teaching and learning will not be static, and materials and classroom practice will evolve to meet current demands. In particular, Internet technology will continue to expand our resources and thus redefine our course content and goals. As TA supervisors face this challenge, it is imperative that they adopt a model for professional development that encourages novice teachers to focus on sound pedagogical theory. In order to ensure that technology supports and enhances teaching and learning, TAs must learn to frame questions about what specific CALL applications assume about FL learning and whether the assumptions are valid. Schwartz maintains that "without proper teacher-training, evaluation of CALL materials, and research on student use of computers for language learning, CALL is likely to meet the same fate as the language laboratory of the 50s and 60s" (Schwartz 1995, p. 534). In order to avoid this fate, technology itself should never be the focus. Rather, technology should serve as a means to reflect about FL teaching and learning. Finally, when TAs are taught to assess technology in this way, they will learn to frame the theoretical questions that ought to inform their pedagogy.

## Notes

1. See Omaggio Hadley's *Teaching Language In Context*, 2nd edition (Heinle & Heinle Publishers, 1993), for a more detailed review of the effects of behaviorism and cognitive psychology on language teaching.
2. In "CALL Today: Implications for Multisectioned Language Programs" (*Challenges in the 1990s for College Foreign Language Programs*, AAUSC Issues in Language Program Direction, Heinle & Heinle Publishers, 1990), Ariew categorizes computer technology into four groups, each one for a different purpose: 1) presentation, 2) communication, 3) research, and 4) instruction, or CALL.
3. Several graduate students at Vanderbilt University have made interesting discoveries by videotaping students who were using different kinds of software. Elizabeth New videotaped students using *système-D* while they were writing and observed the kinds of additions and deletions they made as well as the ratio of pause time to writing time. Lara Mangiafico videotaped students using *Nouvelles Dimensions*, the interactive multimedia program for developing listening comprehension, and observed how often students accessed the transcriptions and the translations of video clips as well as what kinds of students used those tools. Jennifer Gilbert videotaped students reading a play on the computer and documented when students accessed the available cultural and linguistic information. All of these descriptive studies provide interesting information about what students really do with the software that

they are required to use. Other interesting CALL research projects include Kern (1995b), Lyman-Hager (1995), Mangiafico (1996), and Scott and New (1994), to name just a few.

4. For example, one of the qualitative findings in a study by Oliva and Pollastrini (1995) is that FL students (in this case students of Italian) consider that Internet-Mediated Instruction has a positive impact on their learning and that they feel that their writing skills improved most from their work on the Internet.
5. *J'veux bien!* by Bragger and Rice (Heinle & Heinle Publishers, 1995) includes either a traditional workbook (*Manuel de Préparation*) or a CD-ROM version.
6. See Scott and Terry's *Teacher's Guide: système-D Writing Assistant for French* (Heinle & Heinle Publishers, 1992) and Scott's *Rethinking Foreign Language Writing* (Heinle & Heinle Publishers, 1996) for a detailed description of how *système-D* can be used to teach writing in French.
7. This program, authored by Professor Dan Church, Vanderbilt University, is not currently available for purchase.
8. Professor Dan Church, Vanderbilt University, often puts texts in an interactive hypertext format. None are currently available for purchase.
9. Graduate TAs in French at Vanderbilt University must have 18 credit hours at the graduate level before they are permitted to teach. Students beginning their graduate study have one year of full support before they are required to teach. All graduate TAs in French, regardless of their previous academic or teaching experience, are required to take a one-semester graduate course on the methodology of foreign language teaching. Some students take this course before they begin teaching while others take it during the semester that they begin their teaching at Vanderbilt.

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# A Revolution from Above: The Race for Technology in Foreign Languages

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We did not hear the starting gun go off. We did not know where the track was, much less that we were entered in the race. Someone said it was just the preliminaries, so no sweat. We can go to the locker room, change clothes, pick up our Nikes, and be back on the field in time for the second or third heat. Hey, wait a minute. Which race are we running? Who is the competition? How will we know when we have crossed the finish line?

## On Your Mark

Unbeknownst to most of us involved in foreign language program coordination, we have entered a race. Although the more sanguine of us might prefer to call it a journey, we have, nevertheless, set out on a new path without being quite sure how to get there or exactly where we are going. This race is one in which we, as foreign language educators, must reevaluate everything we do in the light of technology's impact on higher education.[1] Just when we thought we had convinced the dean that the old language laboratory had to be replaced with a brand new super lab with video stations, we have learned that traditional language labs may be on the way out and replaced by media resource centers housing computers with interactive videos on CDs.[2] Just as surprising is the news that the marvelous collection of videos that we had finally accumulated after years of begging and borrowing is probably old hat. If we are to use videos effectively, it must now be in video disc format and we are surely obliged to create interactive software to permit students to access a dictionary, oral quizzes, and writing assignments pertaining to each chunk of the video disc they view.[3] We may even put off that trip to Mexico City next summer in favor of taking workshops on the use of the Internet, how to access Web sites, and how to create a home page for our language program.

The opportunities and demands of technological applications to language teaching and learning are growing exponentially. In his introduction to the 1997 ACTFL Foreign Language Education Series volume *Technology-Enhanced Language Learning,* Michael D. Bush tells us that from "curricular objectives to lesson planning, . . . from teacher training to software applicability, there will be no aspect of foreign language learning that will not be influenced by the technological revolution" (p. xiv). With this revolution come the increasing expectations from all our constituencies—students, colleagues, administrators, the public—that foreign language programs will embrace the new technologies. It is assumed that language program coordinators will be in the first ranks of educators who are knowledgeable, enthusiastic, and ready to chart a new course of instructional goals and curriculum design embodying these latest technologies. In fact, James S. Noblitt imagines that language program directors "may find that their primary function will be to catalyze the various elements of significant language study as the electronically enriched language learning environment is designed" (1995, p. 274). No matter the size, geographical location, or institutional mission, post-secondary schools of every type must offer the most up-to-date learning environment simply to remain competitive. The part-time coordinator of a four-instructor foreign language department in a rural junior college must be as technologically savvy and as prepared as the supervisor in a 40,000-student research university where several interactive instructional laboratories are available to language teaching assistants and regular faculty.

Not only are our constituencies placing demands on us but we, too, have put ourselves in this race to move ahead of where we were last year or last month or even yesterday and, in addition, to catch up with the programs across town or on the main campus or at the big school downstate. Every foreign language coordinator views her or his program as existing somewhere along this continuum of technological applications to teaching. Some of us feel that we are just starting out as we sign up for our first workshop on technology and teaching. Others of us are leading the whole endeavor, writing new software programs, posting courses on the Web, and creating innovations in interactive multimedia. The majority of us are somewhere in between.

This is where we, at Florida State University, find ourselves in the spring of 1997, that is, somewhere in between "just starting out" and "leading the whole pack." As a large, research university with graduate and professional programs in all the usual disciplines, Florida State enjoys a regional reputation as an active participant in technological applications to education. This reputation is enhanced by the location of the National High Magnetic Field Laboratory on its campus as well as by its participation in a network of institutions developing distance learning initiatives.[4] The Department of Modern Languages and Linguistics is fairly typical within large research institutions in its offering a full range of undergraduate and M.A. degrees as well as the Ph.D in French and in Spanish. The department teaches a dozen languages, with some 70 teaching assistants and 35 faculty as instructors. There are language program coordinators for six different language divisions, the three most active of whom are in French, German, and Spanish.

Like many language programs of its size and mission, the Department of Modern Languages and Linguistics, by the late 1980s, had attained what its faculty felt was a comfortable place in regard to the use of technology in teaching.[5] In the mid-1980s the department's language labs were completely upgraded to reflect the state-of-the-art at that time. Within a few years, the department purchased VCRs and monitors to serve the faculty who seemed to be moving decisively away from using films, slides, and filmstrips toward showing culturally authentic materials via videocassette. Overhead projectors and tape recorders were reserved at the university's media center for fairly reliable delivery to the classroom on the date when these items were needed. The major technological issues besetting the faculty at the opening of the present decade were how to make a copy of a video without infringing on copyright laws and whether the language labs would be open on the weekend so that students could get extra listening comprehension practice before the exam on Monday.

Our condition of technological comfort, perhaps complacency, disappeared instantly, about five years ago. Practically overnight, terms, concepts, labels, and operations that most faculty had no knowledge of bombarded us at conferences and meetings, in professional journals and newspapers, on television and radio: e-mail, PCs, laptops, CD-ROM, interactive video, fiber optics, Web sites, home pages, laser discs, authoring software, distance learning. Before we knew it the Commissioner of Education had declared that every K–12 classroom in the state would be equipped with computers. The Florida legislature voted to send millions of dollars to education earmarked for programs in distance learning for the fourth most populous state in the country, one whose geographical extremities (from Pensacola to Key West) are 800 miles apart. The Board of Regents recommended that the ten state universities add a technology fee to students' tuition costs with monies raised to be applied to expansion of technology in teaching. Our university established the Office of Distance Learning with a new vice president placed in the school's organizational chart to oversee its operation. The race, clearly, was on.

The discussion that follows will describe where we—faculty, students, and staff in the Department of Modern Languages and Linguistics at Florida State University—find ourselves at this point in the race. Neither at the finish line nor back at the starting blocks, our programs, facilities, and curricular initiatives represent a department that has devoted significant amounts of resources and personal energy during the past five years to the development of technological applications to teaching languages. We offer this discussion primarily to our colleagues who have not yet entered the race, to those who have been observing technological transformations from afar. In our brief program description, we will raise as many questions and problems as solutions. We will issue caveats and warnings as well as try to smooth the path for those who wish to follow. We hope to keep other language coordinators from repeating our mistakes while we boast modestly about some successes. Ultimately, we want to hold up our program—placed somewhere about midstream—for careful scrutiny by our colleagues so that they can decide if the benefits of the myriad forms of technological applications to language teaching are worth taking the plunge. The point is not so much to share what we are doing but rather to explore how and why we find ourselves in this place—midway along the continuum—and to pose the important questions: Is this where we really want to be? and Where, for heaven's sake, do we go from here?

## Ready or Not: You *Will* Be Technologically Sophisticated

As is clear from the state- and university-directed initiatives described earlier, the introduction of technology for educational purposes at Florida State University was a top-down process. In this respect, the introduction of new technology to campuses is radically different from the introduction of other innovations in the profession and, according to Noblitt, "[to some extent] outside the direct control of the academy" (p. 274). Whether earlier innovations were technological (e.g., the language lab) or methodological (e.g., communicative-based instruction), the impetus for change came from within the profession. The teachers demanded the facilities that made it possible to teach languages in the most effective way. In contrast, the thrust toward the use of the new technologies in education has come from above, not only in Florida but also elsewhere. In part, this could have been predicted just from the enormous financial commitment required. Few schools have the resources to provide enough computers to their students to make them a viable instructional tool. Educational technology calls for both financial and political commitment. While some of the political initiative may have the idealistic base of improving education, just as important is the hope that technology will make education accessible to more students without the expense of building more schools and hiring more faculty. Thus technology at Florida schools was greatly increased, but coupled with the mandate to make education more efficient.

One consequence of the imposition of technology on the discipline is that there is often no sense of ownership among the end users. This was certainly the case at Florida State where the reception of the computer lab in the Modern Languages Department reflected its origins. The faculty was not involved in the planning of the space or the purchasing of equipment. Instructors' reactions ranged from enthusiasm—unfortunately, not often combined with expertise—to indifference. The director of the department's Language Learning Center who had, in fact, spearheaded the purchase of the equipment was self-admittedly not a computer genius. Although he admired the technological development, he did not have the expertise to give vision to the use of the new equipment.[6] As a result, the lab was used sporadically at first by the few computer enthusiasts among our faculty. The day-to-day running of the lab and maintenance of the computers was left to two part-time workers, student computer whizzes with no expertise in language acquisition or language instruction. Basic work for the computer lab, such as making connections to the Internet, was often neglected because the student assistants were called upon to take care of faculty or staff computers and/or applications. For the same reason, the computer lab was not always open for its posted hours. There was no supervisor who could set priorities and balance the needs of individual faculty and staff against the potential use of the lab by our students.

Soon, it became painfully clear that there was a real danger that the same thing would happen at Florida State that had already happened in hundreds of Florida schools: unused computers, many still in boxes, standing in halls; expensive hardware installed but unused; a colossal waste of taxpayers' money. Luckily, the upper administration realized that the expensive hardware would not be used effectively and a new faculty position was created whose responsibilities included supervision of the computer lab. All requests for help for computers were channeled through this person and priorities were set. Minor glitches were able to be corrected in a reasonable time. Installation of Internet connections and e-mail were finally completed. Simple changes such as dependable lab hours meant that minimal computer work could be incorporated into basic classes. Soon at least 200 students a day were using the lab, either for required work or for independent projects. The disaster in the making—40 new computers and accompanying software sitting idle for months, even years—was averted because an administrator with authority helped solve the problem.

### Humans and Machines

With two fully operative and supervised computer laboratories, the language coordinators and other faculty felt confident that we were well on the way to technological success. However, there was still the human factor. Undergraduate students, whom we assumed to be universally savvy about technology (hasn't *Super Mario Bros.* replaced the silver spoon as the standard newborn baby gift?) proved to be much less adept than we had predicted. Despite training sessions and specialized workshops, students forget how to use the programs. We learned that students procrastinate even when they can use computers. For instance, not until the first assignment came due with the writing assistant software, *système-D*, did we realize that our "old" program would not print out through the new *Windows95* operating system. This situation became emblematic for the frequent problems arising from the interface of people with machines. Although widespread implementation of technology over the last ten years has made us all more comfortable with computers, a remark made by James P. Pusack in 1987—"high expectations and low expertise mark foreign language teaching in the matter of computing" (p. 13)—is in many ways as insightful today as it was a decade ago.

Faculty interface with our new technology has also not been accomplished easily. As it became evident that we were indeed entering the technological age, possibilities that had been confined to readings in professional journals or an occasional workshop became frighteningly real. Issues that before had been wildly theoretical were now acutely personal. Stereotypes and fears of technology emerged: the fears that a discipline that had prided itself on its intense personal contact with students would be forced to fit into a digitized straitjacket; the fear that the curriculum would be revamped to suit the technology and not vice versa. These fears were strong even in the face of ardent proponents' claims that "pedagogy seems to be a year or two ahead of the technology" (Pusack and Otto 1997, p. 43). Gradually we realized that the cause for many of our fears was our own ignorance and computer illiteracy. At Florida State most of the faculty members—with a few exceptions—used computers only for word processing. The transition to e-mail access for each faculty member was completed only recently. The majority did not use the Internet and only two knew how to create a home page. The sudden march of the upper administration into technology and distance learning revealed that we could no longer be content with our attitude that ignorance is bliss and that we had to formulate a response on at least two levels: the immediate need to respond to the administration and the almost immediate need to provide our graduate students with the skills needed to teach in a technological age.

The above discussion only implicitly touches on the most personal fear associated with technology: the fear that innovation and creativity would ironically lead to obsolescence. The imposition of technology and the drive for distance learning force us to justify our existence to politicians and administrators in the most basic manner. Why is the traditional mode of teaching languages—real person to real person—the best? Is it not possible in this era of shrinking tax monies to settle for second best? Why are classes of 25 better than classes of 100? Distance learning has proven helpful in our profession by providing instruction to areas where teachers are scarce and conversely in languages where student demand will not support a full program on site. But we cannot completely discount the possibility that the inexorable march of technology through our discipline will result in draconian reductions in our numbers.

Fear and skepticism notwithstanding, we have seen a hopeful reaction and a sense of challenge in our department. We have recognized that the implementation of technology would call for a reassessment of our basic assumptions about curriculum design and, indeed, perhaps even lead to another one of those much touted "paradigm shifts." We must be willing to exploit technology where it serves the learner while intelligently resisting administrative initiatives that are more concerned with budgets than learning. The administration and faculty must work together to determine how technology can best be implemented within the instructional and political context of an individual program. Communication must go beyond discussion of budgets and hardware in the Dean's office and grousing in the faculty lounge. Administrators need to learn about the goals and methods of language teaching. With that knowledge, they will not assume that the introduction of computer-aided technology equals the reduction of teaching staff.

Furthermore, faculty need to listen to the constraints placed on the administration by governing boards and legislatures. True collaboration can only begin when communication replaces defensiveness.

## Whose Curriculum Is It, Anyway?

One trait that differentiates foreign languages from other academic fields is that the teaching of our subject demands a more personalized and individualized curriculum than many other disciplines. Our goal of communication requires personal contact. We get to know our students. We do not just lecture faceless masses. We teach our students to speak in the target language. But perhaps it is time for a reality check. How many of us can say that we have created that perfect student-centered, individualized classroom? How many beginning teaching assistants have you visited who use all those communicative strategies you have attempted to instill in them? How many of us succumb to the urge to teach grammar? Strangely, a potential solution to many of these problems of beginning language instruction may well be found in the most rudimentary applications of computers. Computer programs still work best when possibilities are finite and predictable. Of all the skills that we teach, grammar is the one that most nearly conforms to the strengths of the computer. The use of computer grammar activities allows the teacher to direct valuable class time towards true communication and spontaneous interaction. The temptation to explain once more a point of grammar or to drill students can be easily resisted when the computer can give immediate feedback on grammar points to each student. In addition, a teacher utility pack allows the instructor to check if students have done the work effectively.

Consider the following questions: Students do not take advantage of your constant availability to help them with compositions?—Force them to get help by using writing assistant software, such as *système-D* (1992), *Atajo* (1994), or *Quelle* (1997). Students complain that reading in a foreign language is a time-consuming ordeal filled with looking up words in a dictionary?—Provide them with a computerized second language reading gloss such as the type developed by Davis and Lyman-Hager (1997). Students see no relevance of foreign languages to their major or their lives?—Send them net-surfing using Lafford and Lafford's 1997 overview (pp. 215–239) as a starting place.[7] They can find information on any imaginable subject in the target language. The students can create their own content for learning without being tied to the topics covered in the text.

Yet, even such exploratory implementation of computers raises serious issues. First, we must determine which of the new technologies—or which of their many applications—is most effective for each level of language study. Secondly, we must decide if there is a logical progression in the implementation of technology. Does the common sense sequence of technology apply, beginning with prepackaged grammar drills and interactive CDs for listening, then moving to software for writing skills, and finally independent work on the Internet? Or is it better to think more expansively and incorporate Internet technologies from the very beginning of instruction? Lafford and Lafford, for instance, outline a whole range of interactive and non-interactive activities for beginning, intermediate, and advanced students based on on-line newspapers, Web sites, databases, e-mail, chat rooms, and so forth (pp. 221–235).

We are discovering that more technology can lead to more communication. However, a major change in the curriculum that the technology seems to demand is a rethinking of our definition of communication. In recent years the emphasis has been on oral communication to the extent that many identify the idea of proficiency almost exclusively with oral proficiency. Valdés *et al.* concur that there is an "existing emphasis on spoken language proficiency" and that "few studies [...] have actually investigated the development of writing in FLs by American students . . ." (p. 334). However, communication via technology is largely based on writing and, of course, reading. In terms of grammatical accuracy, writing is certainly a less forgiving mode than speaking. Slurred endings or an incorrect word can be overcome through sheer determination on the part of novice speakers to get their ideas across; in contrast, when sending a message via computer or fax the student may only have one chance. As teachers, it is our responsibility in the era of e-mail and fax to see that our students can communicate in writing. While texts have made inroads into reducing grammar and applying communicative approaches to learning the rules, these approaches have all assumed that the goal of instruction is to teach students to speak. It is now incumbent on us to reexamine the ideas of the functional-notional approach and create a truly communicative approach to writing, the first guideposts for which appear in Virginia Scott's 1996 overview of the present state of teaching foreign language writing (*Rethinking Foreign Language Writing*).

Leading our students to the virtual authenticity of the Internet may cause a realignment of communication toward reading and writing. It may well cause us to reassess the grammatical priorities of beginning language instruction. Reading strategies that teach students to cope with authentic texts will become even more crucial, and teachers will have to become as familiar with the ACTFL *Guidelines* for reading proficiency[8] as most are with the *Guidelines* for oral proficiency. We must not be afraid to debate the possibility that reading and writing could again become the foundation of introductory language teaching and that conversation would be the center of later instruction.

The implications of these (possible) changes in language teaching for those just entering the profession loom large, especially for those in this transition age. Minimally, the faculty of the future will have to possess computer skills sufficient to:

- review commercial software and implement it effectively for students;
- be able to write to the Web so that the instructor can provide guidance for students who are using this resource for language learning; and,
- be able to use basic authoring programs (e.g., *CALIS, QUILL*) to supplement and personalize commercial programs and authentic texts.

In the course of their careers, there is a good chance that the future faculty members that we are training will be called upon to teach and design distance learning classes either over computer lines or through video-conferencing. The former demands that the instructor make choices about whether to use the World Wide Web as a supplement or as a primary mode of instruction as well as possess advanced writing skills for the Internet, while the latter demands a modicum of technological know-how combined with camera presence and solid teaching techniques adapted to the camera. Obviously, many of us currently supervising teaching assistants will need some remedial training ourselves. However, even those of us with limited expertise must recognize the implications of these developments for training teachers.

The teacher as facilitator, a role with which we were just becoming comfortable, takes on a new dimension. As we shift the aspects of language learning that require interaction—but not complete spontaneity (e.g., grammar practice, pronunciation drill, and listening comprehension[9])—to the computer[10] and away from the classroom, we can directly introduce our students to the culture (albeit virtual) of the target language and empower them to pursue their own interests. In a sense, we can invite them to create their own syllabus. Aside from the technological challenge, what does this freedom on the part of the student mean for the teacher of the future? True personalization of language instruction—not merely individualizing the pace of learning or adding a few requested topics to the syllabus—demands a high level of proficiency and an even higher flexibility on the part of the teacher. Even experienced teachers could feel daunted when asked to adapt Internet texts on subjects ranging from specialized scientific topics to television programs like "The Simpsons" into meaningful language learning activities. For inexperienced teachers, like those under our supervision, who are not yet comfortable with their roles, we will have removed the safety net of "teaching grammar."

As students use the World Web Wide on their own, we cannot protect them from authentic language; we cannot gloss the texts. Therefore, we must train our teaching assistants even more intensely on how to use reading strategies such as activating schemata, getting the gist, etc. We must also be aware that we could be asking TAs to teach beyond their capabilities. Especially in less commonly taught languages—but not only in these languages—American students may come to graduate studies with only an academic introduction to the language they teach. Their competence in the language may be limited to literature and some cultural topics. Thus as our TAs learn to teach their students, we must also teach them to teach themselves on two levels: first, to expand their own command of the language and secondly, how to channel their students' net surfing into activities that enhance language learning.

## Where Are We Going?

Except for the visionaries, for those who are on the leading edge of the development of tools and applications of technology to language teaching, few of us could agree on where the next leg of this race will be run, much less how or when we will get there. We probably all agree on the essential goal—however nuanced individual elaborations are—of wanting to provide the most effective language learning program possible which will meet the needs of all our students. Beyond this basic agreement, however, when we try to evaluate the role that technology plays (and will play) in helping us to achieve our goal, each one of us is likely to stand in a very different place along the continuum. Some are following close on the heels of the visionaries; others are committed to implementing sweeping changes in the next five years. Still others are bewildered by obstacles and predictable problems: departmental interest, faculty and TA training, institutional support, availability of facilities and equipment, funds for maintenance, student response. A few of us, perhaps for the first time, are confronting what seems to be a revolution in language teaching and scarcely know where to begin.

After five or so years of working very hard to catch up, to move ahead, to take what was thrust upon us by an administration and a state government determined to place higher education in Florida in the forefront of educational technology, the language coordinators at Florida State University are pausing to take stock. We are concerned about our inability to plan for curriculum changes, faculty development, teaching assistant training, and purchase of course material. We wonder if the workshop on writing assistant software that we will attend in August will be obsolete by December. We do not know if this year's "new" intermediate French text will have to be replaced by next year's even newer version because the publisher will integrate Internet activities in the forthcoming edition. We are beginning to wish that a moratorium on all technological applications to language teaching could be imposed. However, neither the forces of technology nor of consumerism would allow that. At least, we could all catch our collective breath and begin a dialogue about what language teaching in this age of technology is and can be about.

If we began such a dialogue, we might hear some voices raise the only questions that it has been impolitic to ask during the last decade: Do we really want to be on this particular bandwagon? Do we actually want to enter this race? What would happen if we decided not to compete? These questions—courageous or foolish depending on one's point of view—are seldom given a hearing in the present climate. Those who pose these questions are not advocating a return to the blackboard and the copybook as the sole aids to instruction. Rather, they are challenging us to think about our motives and our goals in participating in this technological revolution.

Not only do we ask ourselves these questions; but, now, all of our constituencies—the instructors we supervise, the administrators to whom we report, our colleagues, and our students—require that we demonstrate leadership in regard to the application of technology to language teaching. Our constituents want to know what the latest developments and applications are, whether this "stuff" is as good as it is touted to be, whether teachers are going to be replaced by machines—and if that is good or bad—and whether we will start teaching language classes with a hundred students in a room and rely on interactive software to provide individual practice. At the very moment that we language program directors recognize that this technology race is for real, one of the most challenging demands of the whole enterprise is thrust upon us: we are called upon to demonstrate knowledge, expertise, and leadership in a domain in which only a very small minority of us have had any training, much less pertinent experience, and for which many of us have little time. We may not feel competent to answer any of their questions, but we must do so, with varying degrees of confidence. We are designated the expert—however reluctantly we accept the title—on the technological applications to language teaching; we simply have to figure out how to be one. And in accepting that mantle of "expert," we, too, accept the responsibilities of looking ahead and asking all the questions.

Will we abandon that extensive and hard won collection of videos because we do not wish to appear ignorant of the "advances" of interactive multimedia? Will we reduce human contact hours in favor of contact with interactive software? Will we require all our students to submit homework assignments by electronic mail simply because the university has provided this service to the campus? Will we apply for that $10,000 instructional improvement grant knowing that the money can only be used for the development of distance learning modules? The preceding litany of questions touches on only the superficial ramifications of technology. The long-term effects such as the implications for national standards and proficiency must also be considered. We may be making so many of our professional decisions—curriculum changes, textbook selection, teaching assistant training, instructional methods, primary and ancillary materials and resources—based on an attempt to catch up with the technological revolution that we may no longer know what we are about. This is the moment that we pause and realize that we are not running a 100-yard dash, but a marathon. We will learn to pace ourselves so that we make it to the finish line.[11]

## Notes

1. It is little comfort that we are not alone in this situation. Klein (1995) chastises the academy, specifically the Humanities, for practicing "benign neglect of the computer revolution" (p. 153). Examples of such publications range from a special issue of the multidisciplinary *College Teaching* (Fall, 1996) to the Modern Language Association's *Literacy and Computers* (1994) volume in the Research and Scholarship in Composition series.
2. In 1990 Lawrason reported a significant decline in the percent of audio-only language labs (from 53.9% in 1976 to only 17.8% by 1988). Lawrason reported a similar decline in the use of the term *language lab*. Current terminology includes *language media center* and *learning resource center* (1990: pp. 20–21).

3. In 1989, Altman described a computer program that would lead a student through a video, "stopping to ask appropriate questions, replaying segments . . . [and] providing glosses . . . (p. 166). What Altman identified as "experimental" a decade ago has become, if not commonplace, readily accessible to instructors of commonly taught foreign languages.
4. Florida State's School of Social Work, for example, will offer the first Master's Degree in Social Work (MSW) entirely taught in an interactive distance learning mode, beginning Fall 1997.
5. Florida State currently has a total of three laboratory rooms, which serve about 2,500 students per term. One lab is used for independent study (Sony LLC 5510) and includes 36 student stations, twelve of which are equipped with video monitor/recorder units. The other two laboratories are used for class meetings. These labs (Sony ZL 10) allow students to work with material at their own individual pace or interact with others in the class.
6. At present, the computer lab has 25 multimedia PCs—half of them Pentium 75s, the other half Pentium 100s—housed in one room. There are also two Macintosh Performas. All of the computers are connected to the university server by Ethernet and have unrestricted access to the Internet. Two laser printers provide printing capabilities via *Microsoft Networks.* A scanner is connected to one of the PCs. We are in the process of equipping a second, smaller room for special projects. It will have a laserdisc player and a computer connected to a TV/VCR for the production of multimedia course modules. The authoring software available is *Wincalis* and *Express Author.*
7. More and more commercial materials, such as *Surf's Up!: Website Workbook for Basic German* by Linda Moehle-Vieregge, Sabrina R. Bird, and Christine Manteghi, are becoming available to aid teachers who want to incorporate Internet activities in the curriculum but who are perhaps lacking in expertise or time to create their own.
8. The general design of the ACTFL *Guidelines* for reading was validated in a 1996 study by Edwards. She states that faulty design of earlier studies "may have led to a premature rejection of Child's (1987) model" (p. 357), the model upon which the *ACTFL Proficiency Guidelines* were based.
9. Many researchers (Byrnes 1984; Feyten 1991; Valdés *et al.* 1988) view this skill as integral for the foreign language classroom curriculum. Vogely (1995), for instance, sees listening comprehension as "a process

of constructing meaning based on multidimensional relationships between the learner and . . . the influences and . . . elements involved in that learner's reality" (p. 41).

10. Gilby (1996) describes just such a shift. By exploiting the interactive and multimedia capabilities of the computer, tasks that can become repetitive in the classroom can become challenging and engaging when students work on an individual basis with the computer.
11. The authors of the article coordinate the German and French programs, respectively.

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## Part 2

# Applications and Case Studies in Technology and Foreign Language Education

# Enhancing Foreign Culture Learning through Electronic Discussion

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## Introduction

In language learning it seems that *more* is always better. The more information that teachers have about the students in front of them, the more able they are to provide individual attention and assistance; the more information available about individual students' language development, the more targeted the instruction can be. The more language performances teachers have, that is, the more contexts in which teachers see their students perform, the more relevant the instruction. The more information students have about their own language development, the more they can assist their instructors.

Technology has played an important role in helping us get to that *more.* N. Garrett (1991) was one of the first to remind us of using technology to keep track of the language development of learners. The work of M. Pienemann (1992) with the COALA system (a computational system for interlanguage analysis) to track language development is another example of the important relationship between technology and providing teachers and learners with critical individual information. Most assuredly, the movements toward elaborate computer-based language laboratory facilities are also built within the spirit of providing *more*—more input and more opportunities for practice. In some sense, these uses of technology have targeted the linguistic/grammatical/strategic level of language learning, in part, because at that level, knowledge is relatively discrete and concrete; in part, because it is relatively unassailable. In other words, whether a form is or is not used correctly is only rarely a matter of significant debate, whether a learner reports the use of a strategy is hardly ever disputed, and whether spending more time in practice—whether it be through sophisticated interactive video-based programs or in contact with e-mail pen pals—is, according to conventional wisdom, time well spent.

Discussions within the theme of *more* and the relatively ephemeral dimensions of language learning, namely, those focused on "culture," are far less direct and certainly not conventional (Kramsch, 1993). Discussions of culture learning are characterized by a particular nervousness. Unlike discussions regarding form, discussions regarding culture are frequently of significant debate, are often disputed, and are sometimes considered simply inappropriate. Concerns over interpretation and accuracy frequently cloud an important point: the more knowledge students have about what they are learning, the more able they are to comment intelligently and substantively on the subject matter. While such debates often lead to an inertia with respect to learning about the culture, students do need to see that the issues are important, even in the absence of consensus in the debate.

Knowledge about form, about how a language is structured from the morphemic through the discourse level, about how conversations "work," must be contrasted with how students construct their images of the culture about which they are studying. In a language classroom, language form and the content are closely aligned; in that same classroom, however, culture form and content are not so closely aligned. In the classroom, particularly one in which the target language is used exclusively, the "culture form" can only be targeted at a level that can be explicated within the limited set of linguistic structures available. The conceptual knowledge that the learners have at hand, however, is much richer. In other words, the learner is able to understand and conceptualize much more than the "limited set of linguistic structures available" will allow. This mismatch is of serious concern.

This paper explicates a use of technology targeted at realigning conceptual knowledge and new knowledge regarding cultural issues. It explains how electronic discussion groups held in English facilitated the learning of culture and, thereby, enhanced student affective and cognitive performance in an elementary German class.

## The Issues

Culture learning is almost a meaningless concept. Only the foolhardy argue that one can discuss culture without language or language without culture. In fact, an entire recent issue of "AAUSC Issues in Language Program

Directions" points to the notion that the field must redefine itself out of the notion of language study *qua* language study (see *Redefining the Boundaries of Language Study,* 1995) and rediscover and reintegrate the many disciplines that provide the foundation for language study: poetics, psychoanalysis, literary theory, teacher education, sociolinguistics, ethnography, cultural studies, literacy. While such a list is captivating and fundamentally not disputable, it can lead one almost to the point of despair—how can language programs and language teachers be all things to all students, directed toward a myriad of perspectives, philosophical stances, and theoretical considerations? Equally foolhardy, however, is failing to differentiate and distinguish between the *linguistic* complexities of language learning and the *conceptual* complexities of culture learning. Language learning engages the psycholinguistic network; culture learning engages beyond the psycholinguistic.

These phenomena and their influences are nowhere clearer than in comprehension research. Comprehension research—not only *second* language, but indeed *first* language—consistently indicates that word and sentence knowledge (for purposes here, *language* or *grammatical* knowledge) are necessary, but insufficient knowledge bases for *understanding.* A now classic account referring to first language acquisition and literacy is the following:

> Knowledge-based inferences are inherited from the reader's knowledge about physical, social, cognitive, and emotional phenomena. We assume that this world knowledge is embodied in a large set of *generic knowledge structures* (GKSs) and *specific knowledge structures* stored in long-term memory . . . We assume that the knowledge-based inferences generated during text comprehension are furnished by the GKSs and specific knowledge structures that are relevant to the text . . . (Graesser, Haberlandt, & Koizumi, 1987, p. 218).

In other words, in the understanding process, comprehenders engage an array of knowledge sources. These knowledge sources are principally referred to as "background knowledge."

In work in second language, E. B. Bernhardt (1991) has discussed different types of background knowledge, categorizing them as "local-level," referring to "highly idiosyncratic knowledge that individuals carry with them"; as "domain-specific," referring to schooled/professional kind of knowledge; and as "culture-specific" knowledge, meaning "ritualistic as well as cultural-historic knowledge" (pp. 95–97). Research indicates that second-language learners indeed engage these kinds of knowledge sources when they confront their second-language tasks. The dilemma is, of course, that when second-language learners engage their knowledge sources, those knowledge sources are ***not necessarily*** relevant or appropriate and perhaps most importantly, these sources exist ***in English.*** It is not uncommon for comprehenders to interpret foreign language texts within their (the comprehenders') cultural and knowledge framework. M. S. Steffensen, C. Joag-Dev, and R. C. Anderson (1979) noted this early in the comprehension literature. When asked to read passages cross-culturally, subjects inevitably reinterpreted within the framework of what they were most familiar with. Many further studies have provided additional evidence in this regard. The task for second-language instructors, then, is to imbue relevant and appropriate knowledge so that foreign language texts do not get "reinterpreted" within a cultural framework that is at odds with the intended cultural framework.

Traditionally, two approaches have been taken with this issue. The first is avoidance, the "they will pick it up as they go" method. The second has been through the concept of the bridge or "introductory" culture class. N. Shumway (1995) comments cogently on this approach in an article on culture learning. He laments that third-year courses, frequently referred to as the first "content-oriented" language courses, "usually end up being crash studies in cultural literacy, a kind of accumulation of culture capsules not unlike those that punctuate first-year textbooks . . ." (p. 251). The field recognizes that these crash course solutions are problematic. One need only look at the number of presentations and sessions at professional conferences that examine the issue of the bridge—how to get students out of language courses and rapidly into the "upper-level" coursework. At the very least, the idea of beginning systematic cultural study after beginning to learn a language reinforces the absurdity of learning about "culture" separate from learning about language. The result is that learning will be less than optimal in either one. Another way to view this is to assume that the reason for learning a language is to use it for some unique purpose. Cultural study can be one area in which students can clearly see the need to understand a language if they are to acquire cultural knowledge. By thinking about such issues, students have a vehicle to make the language learning more purposeful.

## A Suggested Remedy

In some sense, there is no solution to the issue of the acquisition of culturally appropriate knowledge structures. A full acquisition of that kind of knowledge would imply a transformation into the second culture. This is, of course, neither possible nor desirable. But the culture acquisition process that enables engagement with authentic cultural and literary texts must start somewhere and enrollment figures tell us that it is programmed into the curriculum at far too late a stage.

Indeed every decent foreign language textbook on the market today is full of cultural items, some more elaborate than others, but most assuredly there. These items tend to focus on contemporary culture—whether there are salad bars in Spain and bank machines (ATMs) in Italy and cable TV in Germany. These types of items have replaced the traditional (yet corollary) type of item that showed pictures of Beethoven, Puccini, Molière, and Tolstoy. Neither is terribly satisfactory.

No matter how analytic, cultural presentations are a few paragraphs of "facts" that can only be responded to as "gee, cool, there are Black people who speak German. Maybe that will come in handy some day " or "wow, I didn't realize that Spanish in the Americas was related to Catholicism." There is simply no way to get at why these presentations reflect important issues in contemporary Germany or Latin America because there is not enough language in the learners to understand it *auf deutsch* or *en español*, there certainly is not enough time, and the learners are not equipped with the prior knowledge base to make the points anything more than trivial. Furthermore, college-level learners are at the intellectual level to develop understandings of why or why not something is important. But "understanding" only comes from systematic study. *Gastarbeiter* one day and Christo's wrapping the Reichstag the next; or *haute cuisine* and then a segment on the Côte d'Ivoire are simply insufficient. In other words, while such information fillers satisfy some of the requirements of ritualistic knowledge, they do not address larger cultural and intellectual history issues. They tend to be relatively particularistic, not placing these "facts" into historical contexts or even against backdrops. In some sense, a language textbook cannot be expected to provide that backdrop. That, however, is exactly the dilemma.

This is one of the reasons why, even after an expertly executed first-year program and/or second-year program, learners cannot cope with the "upper-level" curriculum. They may well have a lot of language, **but** they have no conceptual tools for dealing with the subject matter. Even when they have been given a contemporary view of the culture and the language that is not terribly helpful—no more helpful than it was when all they received was every *analytical* skill (grammatically speaking)—it is not what gets the learner where he or she needs to go. It has become clear that students often have good "language skills" but none of the background necessary to put those language skills to good use in reading, reflecting on, or talking about substantive literary and cultural texts.

An example from a first quarter university-level German Studies course illustrates an attempt to resolve the dilemma presented by attempts to acquire cultural knowledge. The syllabus for the course contained the following introduction:

> *Objectives*: This course is an introduction to the language and cultures of the German-speaking peoples. To that end, we have both language objectives that we try to meet in the course and sociocultural objectives. Because this is a beginning language course about 90% of our time is devoted to language learning and about 10% to cultural issues. Research indicates that the more knowledge you have about the context in which language is used, the higher your skill level will be.

After listing the language objectives, the syllabus continues:

> *Culture*: The first year German Studies program at Stanford also intends to provide you with a working knowledge of the broad historical outline of the history of the German-speaking peoples. It intends to introduce you to terms from geography; politics and society; history; and literary and aesthetic culture.
>
> German Studies 1, as the first course in the first-year series, also focuses on these topics and is directed toward bringing you toward these goals. Specifically, we will focus on the geography of the German-speaking areas of the world and on a set of cultural themes such as education, economics, and religion.

In order to address these cultural themes, an English language syllabus accompanied the basic language program. The syllabus consisted of reading Gordon Craig's, *The Germans*, a readable academic, cultural history of the German-speaking peoples. For some scholars of Germany, the book is considered to be "conservative." For undergraduates beginning the learning of German, however, the book is able to capture some of their interest from the engaging first line, "The first time I saw Germany was in 1935, when I went there at the end of my junior year in college . . ." (p. 7). At points in the book, the author refers to that undergraduate experience that enables the undergraduate reader to identify at an important level. During the first quarter, themes included *religion, women, Hitler, money, Germans and Jews*. For their assignment with the reading, students were required to participate regularly in discussions of each chapter held on the World Wide Web. In brief, the requirement was to post a comment in English for each chapter. Students were encouraged to respond to comments of classmates. (There were no restrictions on length of comments.)

The first entry, dated, January 21, 00:20:30, from Kim, follows:

> I'm not much into history, but I found Craig's explanation of why German culture is seen as (and indeed is) so authoritarian to be very interesting. I found it particularly interesting in light of that fact that in my psychology honors seminar, one person is doing a study comparing storytelling techniques of German versus American parents to their children, and the authoritarianism of German culture is evident even in the stories German mothers tell to their kids (compared to US mothers) when seeing the same picture (about which they are told to create a story).
>
> (I hope this made sense . . . and I hope this is the kind of thing Frau Bernhardt is looking for. . . )

As a first comment, at least it indicated that the student had done some of the reading. Perhaps most importantly, the comment reveals one of the primary beliefs that most Americans hold about Germans—their authoritarianism. Clearly, this student has thought about the German-speaking peoples not just in terms of whether they do or do not wear *lederhosen* and drink beer, but takes the opportunity to relate his own experience, psychology, with what he is reading, German culture.

A few days later, another student, Jill, responded to Kim's comment about authoritarianism. Jill refers to a friend of hers who visited Germany who told her that Germans do not jaywalk as often as Americans do. She reacts:

> Although the younger generation may be moving away from extreme obedience, the German people still seem to have more deference to authority than, for instance, Americans.

Again, in this excerpted response, one begins to capture a sense of the student's knowledge base and the structure of her belief system about the German-speaking peoples. This is an example of an early post to the discussion group—it is conceptually unsophisticated and colored by highly idiosyncratic comment.

About a week later, the posts suddenly became substantially more thoughtful and less display-like. Craig's chapter on money prompted an array of responses. Wanda responded with:

> This chapter talks about money which is not purely an economic phenomenon. I was interested in the ethical political aspects of it that are not explored in my econ book . . . Finally I'd like to know if the Krupp [sic] in this chapter is the same Krupp whose successors are so generously helping Stanford students like me to land an internship in Germany.

Kim responded the following day with:

> Oh, and about Krupp, I heard that Krupp coffee makers (Krupps Kaffeemasschinen [sic]) are of the same Krupp name that was involved in making parts for the Nazi war effort—so I presume this is the same one. *Das ist sehr interessant. . .*

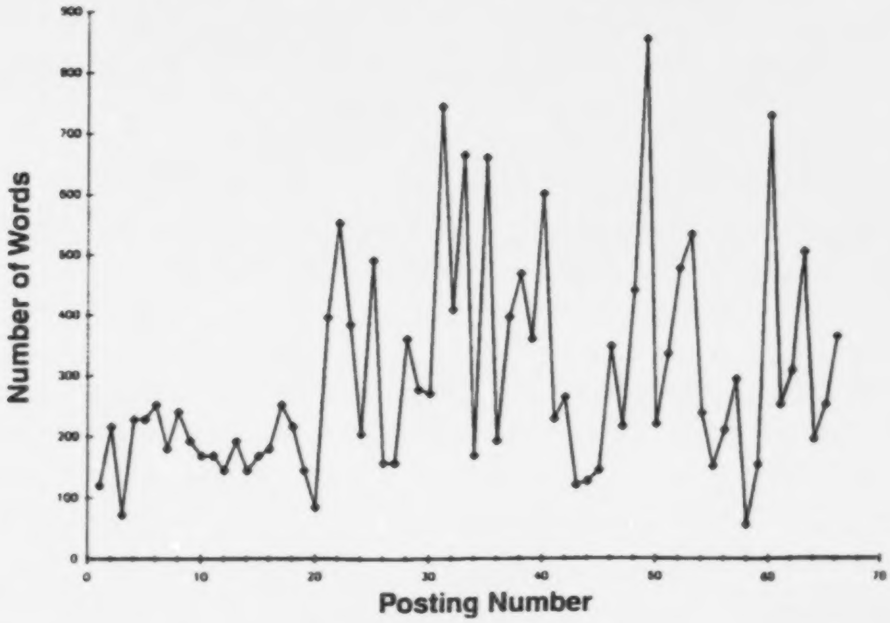
Oliver contributed to the theme:

> One thing I did like was the notion that money is the modern day equivalent to magic/alchemy and that financiers are like sorcerers or "Hexenmeister." I never thought about money or finance in that way and as an econ major, this notion struck me. I think Craig is absolutely right.

From January 21 through March 18, 19 students posted 66 times to the discussion group. Clearly, several students did not receive full credit because they did not contribute at least once to a chapter, but largely, most of the students participated and exhibited a high level of intellectual ability and thoughtfulness.

Figure 1 illustrates the variety and length of contributions across time.

**Figure 1: Length of Newsgroup Postings as a Function of Time**



These are rough measures and indicate a lot of variability in response. At the same time, they also indicate substantial engagement in the task over time. Given that there were no restrictions on length of response, and given the hectic pace of the typical undergraduate schedule, it is noteworthy that the students self-regulated into substantially lengthy commentaries. In some cases, students contributed upwards of three full-typed pages, amounting to the equivalent of complete assignments in non-language courses.

## The Impact on Learning

There were several outcomes from having implemented the English-language portion of the German studies language course culture syllabus.

First, the course suddenly became a college-level course. There was indeed now a serious distinction between high school and college, one that was welcomed across the university. Colleagues in other areas frequently view language learning as a technical skill accompanied by "some cultural stuff" but rarely as a systematic intellectual endeavor. Despite the field's view that this is indeed not the case, and that language learning is indeed a viable intellectual endeavor, assigning students significant reading on which they are required to reflect sent an important message regarding increasing the intellectual content of the language courses.

Second, the students were treated as adults. Language students are quickly frustrated by thinking in conditionals and only having the language to speak in indicatives. Writing on the Web afforded them an opportunity to talk at their own level about what they were learning. Figure 1 indicates the high level of engagement considering the average comment lengths of 289 words. Toward the end of the quarter it seemed that students were trying to outdo each other in their intellectuality. In some sense, it permitted students to "see" and to perceive each other under different lenses. The language "stars" in the class were not necessarily those who had the greatest or most interesting insights into German culture. It was important for all students to see each other as positive contributors to the learning experience.

Third, senior colleagues and graduate students caught up in their literary and cultural studies saw these students in a totally different light. Students made interesting and frightening comments about the German-speaking peoples—things that were thought provoking and at the same time incredibly naive. As a result of these comments, senior colleagues who monitored the newsgroup were more willing to consider working at the lower levels of instruction. Rather than seeing them as "skill-getting" courses, they began to see them as intellectual endeavors at a refreshingly naive, yet fascinating level.

Fourth, reading things in English—giving students a knowledge base—gave them things to say in the language they were learning. The students were quickly out of the mode of "wie sagt man *Rollerblades* auf deutsch?" and into the mode of "wie sagt man *'civil rights movement'* auf deutsch?" It was clear from both student and teacher perspectives that one could use even elementary language to talk about important topics: there is nothing inherently easier from a linguistic perspective about the word *Rollerblade* than the word (in German) for *civil rights movement.* While students continued to be and to feel insecure about the nature of their German *per se,* they felt more secure that they had content from which to draw that went beyond the random set of "facts" and toward the analytic.

A final point: admittedly, it is foolhardy to argue a direct causal relationship between the substantive engagement with "ideas" about the German-speaking peoples and success in language learning. There are innumerable intervening variables and any claims would be unwise and arrogant. However, a measure of success that is often used in the field is enrollment and retention. Of the 19 students who participated in the program over two quarters, four of them exited declaring a German major, five a minor. While some of the teaching evaluations noted that "the book was boring," most students hastened to add that they were happy they had read the book and discussed it on the World Wide Web.

## Technical Issues

It is important to question the effectiveness of the learning of culture mediated by the computer screen. Why not simply have students read assignments, write brief essays, bring them to class, exchange them, and discuss the issues? The answer is simply that this could be done, but it requires a great deal of synchronous communication time; that is, communication that takes place when everyone participates at the same time, much like a class discussion. The asynchronous nature of the computer-mediated discussion described above is valuable because it does not require that everyone do the same task at exactly the same time. In fact, asynchronous communication takes place when the various parts of all exchanges are made at different times. Class time seems better spent on those tasks that require immediate, synchronous feedback—e.g., time for speaking practice and discussion. Clearly, some forms of synchronous electronic communications such as that in interactive chat rooms or bulletin boards can be valuable because communication takes place in real time. That is, all of the participants need to be involved as the discussions are taking place, although they may join or leave as they choose. This sort of discussion is truly interactive, with responses delayed by only the time for signals to be transferred from computer to computer.

The suggestion here, however, is that the discussion/newsgroup format is asynchronous in nature. It does not occur in real time, but according to the schedule chosen by the participants. Communication may take place over time intervals ranging from minutes to weeks, depending on when the participants have time to read their e-mail or news postings. Throughout the examples used in this paper, it was not uncommon for students to respond on the newsgroup at 3 in the morning.

A newsgroup is more public than most synchronous discussion in the distribution of messages. Messages in a newsgroup are stored on a central server and are available to anyone with authorized access. Anyone with access to the news server can subscribe to the newsgroup and read the communications. As with e-mail, communication is a series of postings and responses that do not always appear close in time. The hardware and software that are required for these sorts of communications can be very simple or highly sophisticated. Almost any recent computer equipped with a modem can be used to access chat rooms, bulletin boards, e-mail, or newsgroups. A decided advantage of these forms of communication is that they are text-based and speedy.

One other critical difference between asynchronous and synchronous communication is the character of the messages sent. When there is time to reflect on the content of messages (as in asynchronous environments), there is an opportunity to produce greater depth of response. When communication has to be done in "real time" (synchronous) the premium is on short responses and there is little time to contemplate either the content of a message or the response to it. A typical, but fictitious, example of the sorts of dialogue available in chat rooms or in interactive electronic communication is given below:

> Student 1: Anybody listening?
> Student 2: Just me. Anybody else?
> Student 3: Whaddya do last night?
> Student 2: Not much. Had a test this morning. Did the assignment for German.

Student 1: Me too.
Student 2: Got to go. See you in class.
Student 3: See ya.
Student 1: I'm outta here.

The style of synchronous messages can and will improve somewhat with experience and practice. However, the investment of time and coordination students have to make to participate in this activity will always be substantial. Synchronous communication requires that all students who participate be connected to the network at the same time; coordinating student time will always be difficult. And, for the exchanges to be most beneficial, everyone has to be participating. One more issue is that the premium is on what the student knows or thinks at a given moment. There is little opportunity to reflect on the messages or to seek other sources of information. For that matter, it may even be difficult to consult the original material (Craig, in this case) during the exchange. Thus, the premium is on the prior knowledge the student brings to the task, not on new insights gained from extended reflection on the problems.

While solving some of these problems, asynchronous communications does introduce some others. First, asynchronous exchanges allow students a great deal more flexibility in responding. Responding can be done at any time, rather than in the "heat" of an on-line exchange. The exchange above stands in contrast with the following taken from the newsgroup exchange where the student has included the comments of Alex in a posting. The posting has become an exchange between them rather than focusing only on the assigned material.

Alex sez:

≥These days, I would not say that the average
>citizen has a great respect for anyone who is rich. I would say
>instead that wealth creates a certain amount of suspicion. Though
>Germany's present view towards money was not discussed, I
>would be interested in hearing how the German
>citizens have adapted to a rich, capitalist society.
≥

≥Alex

This is something that I think is really interesting. We (the USA) used to really look up to the rich and admire their efforts in gaining and sharing the great wealth that they had, maybe that is (as someone said) because they really distributed their wealth (I think it was Alex,

> actually). Nowadays the rich get pissed on by anyone with an opinion as greedy, arrogant, and selfish people. Tax the rich is becoming more and more popular . . .

Even later in the course, the following example shows how an exchange incorporated two prior posts:

> >Debra sez:
>
> >>Germany seems to look into, analyze, and deal with its past much
> >>more than we do
> ≥
>
> And Mike replies:
>
> >I'm curious about what that means. And I also
> >wonder what good it does to have a whole country beating
> >themselves up over something that happened a long time ago
> >(although the Holocaust only ended fifty years ago) rather than
> >looking ahead. Does the United States as a whole really have a
> >past to "deal >with"?
>
> I don't know about "beating themselves up" but I don't think that it should just be forgotten. That is what allow things to reoccur, and to be claimed that they never did occur (as many people say, even today, about the Holocaust).
>
> As for the US's past, how about Native American massacre, black slavery, etc. . . . ?

These examples show several characteristics. As students spent more time with the list, responding and reading messages, they began to pick up on commonalties in other messages and relate similar issues in German and American cultures to each other. In addition, students seem to be questioning each other in their interpretations of the material they had read. It is also clear that the basic nature of the newsgroup format allowed students sufficient time to think about the issues, their responses, and the responses of the other students before they made additional posts.

One necessity of these sorts of discussions is that the instructor often has to intervene when students become lost or make factually incorrect statements. The following exchange between Adam and the course instructor illustrates this sort of intervention:

> I just finished writing a paper on Luther, so I felt like adding something. I know that Professor Bernhardt has quite a problem with Craig's assertion that the Enlightenment found very little manifestation in Germany. Now, I would argue that Martin Luther is a strong counter-example to that assertion.

The instructor followed this point with:

> I think Adam captured important points in his last comment. Indeed, many of Luther's writings represent some liberal/liberating notions. It's important, though, not to be anachronistic. "The Enlightenment" (technically speaking) is a philosophic movement of the 18th century; Luther's dates are 1483–1546. Maybe we could think of some of Luther's ideas as foreshadowing dimensions of Enlightenment thought.

Instructor involvement is a matter of personal preference and there are few firm rules for how much or little intervention is required. Clearly, the example of errors of fact requires some comment by an instructor. It is also likely that the instructor should point out important issues that have not been a part of the student discussion. As with other instruction, however, these require appropriate sensitivity to maintaining the conversation while introducing just enough guidance to get students to learn.

### Etiquette Concerns

Before turning students loose in these sorts of forums, it is well to remind them (or teach them initially) some basic rules of the road (or information highway). What is required, at least, is that the instructor prepares students in the basics of how to conduct a discussion with the appropriate tone, content, and purpose. There are several useful documents available on-line that elaborate on these concepts. One of the best and most comprehensive discussions of these matters can be found on the World Wide Web at: http://www.fau.edu/rinaldi/netiquette.html

Some of the main points of which to remind students are that these forms of communication are not private. They should assume that they will be read by a large number of persons. The newsgroup cited in this paper, for example, was regularly monitored by members of the senior faculty who, by the second quarter of instruction, also began contributing commentaries. Messages should be kept short and to the point. "Fortune cookie" responses should be avoided. Examples of fortune cookie responses include messages like "I agree." Or "Thanks." and nothing else. If a post is for an individual, it should be sent to an individual, not to everyone on the list.

While many of these issues seem like common sense, they may not be apparent to students who have little familiarity with using electronic communications. At the very least, it is good to review them with students before they embark on extensive use of electronic communications. When it comes to posting, it is important that students remember that there may be little context from other messages. When replying to a posted message, it is important to quote enough of the original message to provide some context for other readers. To this end, most programs have provisions for replying with the original message (set apart by some symbol, as in the following example):

Date: Mon, 09 Dec 1996 13:41:16 -0800
To: "recipient"
From: "sender"
Subject: Re: Sample message
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

At 01:26 PM 12/9/96 -0800, you wrote:

>This is the original message.

>Original signature goes here

This is a response. There should be more new information included than quoted material.
Some newsreading programs enforce this rule.

Responder's signature goes here

In this example, the original text is indicated by the symbol '>' at the beginning of each quoted line. This allows readers to understand what was quoted and what was added. The rule of thumb is to have more new material than quoted material. These rules should be reviewed but it should be emphasized to students that the purpose of the discussion is to share knowledge about the topic—German cultural history as the example in this paper.

## Conclusions

The suggestion offered here violates an important principle in foreign language teaching: maintaining as much target language input as possible. Indeed, within the theme of *more*, the more target language input, the better. However, the problematic dimension is that keeping everything in the target language potentially limits growth of cultural knowledge. The nature of the task suggested in this paper requires little additional class time, while it moves students along at an appropriate intellectual level and rate in learning about culture. The convenience, interactivity, and extended nature of electronic discussions make them ideal vehicles for providing instruction in culture to accompany basic language instruction and for offering topics for discussion beyond the students' immediate world. Rather than asking students which campus party or sporting event they attended over the weekend, there is a store of more intellectually viable material to draw on.

While there are clearly alternatives to this suggestion, the use of newsgroup discussion is a reasonable solution to the dilemma of providing *more*. It can be accomplished with little additional equipment or computer expertise beyond that available in most university computer centers. Newsgroup discussions allow instructors to see the use of idiosyncratic and local level first-language knowledge that students have at hand in order to understand foreign language texts. They also enable instructors to watch for the emergence of culturally appropriate notions in their students, but perhaps most importantly, they afford teachers the opportunity to engage students in the foreign problematic at a level and at a point in the curriculum never before possible.

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# Technology, Social Interaction, and FL Literacy

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## Introduction

Technologies of writing are always tied to particular forms of social interaction and conceptions of literacy. From stone tablets and papyrus scrolls, to paper and the printing press, and now to computers, technological advances have always created new possibilities as well as challenges for written communication. "Technologies are not mere exterior aids," contends Walter J. Ong, "but also interior transformations of consciousness, and never more than when they affect the word" (1982, p. 82). Not only "interior" transformations but also profound social transformations arise from changes in the ways writing is produced and disseminated. The transition from vellum to paper during the twelfth through fourteenth centuries in Europe, for example, had a significant impact on literacy practices. The relatively high cost and scarcity of vellum books had meant that reading was most often a public event, with the text delivered orally to gathered groups of people. As Howard puts it, " . . . almost everyone's experience of a book was chiefly the experience of seeing the precious object at a distance on a lectern and hearing someone read aloud from it" (1976 , p. 63). As paper books were introduced and became increasingly available, reading became a more widespread, yet also a more individual and private, practice. The solitary reader, as Howard describes, "could possess his own books, pick and choose what to read, stay up late with a candle, skip, select, compare, turn back, and reread. He had more power over the book—could stop reading to think, could write notes in the margin" (p. 65).

With the advent of widespread computer use and global communications networks, technology continues to affect how we read, how we write, and how we use written language to learn and to communicate with others. The "personal" computing revolution of the 1980s has given way to the "social" computing revolution of the 1990s. Networks such as the Internet, characterized in a recent court decision as "the most participatory marketplace of mass speech that this country—and indeed the world—has yet seen" (Lewis 1996, p. A1), not only permit access to an ever-expanding body of published information but also allow the creation of unique learning communities. The most profound effects of computer technology on literacy and language learning will likely arise not from language pedagogy software but from the new forms of information dissemination and social interaction made possible by local and global computer networks. The implications of networked communication for language learning are important not only because computer networks potentially expand the number and diversity of people one can communicate with, but also because they influence the ways in which people use language to interact with one another. This chapter will focus on three "social" uses of computer technology—synchronous conferencing, e-mail, and MOOs (Multiple user domains Object Oriented)—which present new opportunities for reorganizing classroom interaction, for extending person-to-person communication to worlds beyond the classroom, and for developing literacy and cultural literacy among foreign language learners.

## Local Area Networks and Synchronous Conferencing

Writing in ESL and foreign language teaching has traditionally been seen as a linguistic exercise. Students generally write for a limited audience (their teacher) and for a limited purpose (to display their mastery of grammar and vocabulary). Recently, however, many language teachers have adopted more social and developmental perspectives on writing, emphasizing collaboration among learners at various stages of the writing process. Computers, many teachers have found, can promote this collaboration.

Local area networks (LANs), consisting of interconnected computers located at a particular site, provide groups of individuals an electronic "space," somewhat akin to a bulletin board, in which to post information, ideas, opinions, and questions, and to respond to others' postings. Often used in business settings to improve the productivity of meetings, LANs tend to encourage both the free exchange of ideas and critical feedback—presumably because they allow many of the conventions and constraints of oral face-to-face communication to be suspended. Unlike conversation, for example, in which speakers' turns follow one another sequentially, networked communication allows people to express their ideas simultaneously, increasing the flow of ideas and reducing the likelihood of domination by one party. Since communication is written and contributions can be made anonymously, a certain distance is created between participants and the discourse that may contribute to an atmosphere of critical receptivity.

One innovative LAN application that has caught the attention of language teachers is synchronous conferencing, made possible with software such as Daedalus *InterChange* or Group Logic's *Aspects* or in MOO environments.[1] Unlike electronic mail exchanges, in which the posting and the reading of messages may be separated by hours or days, synchronous conferencing provides all members of the discussion group instant access to each message as it is sent. Students and teacher sit at individual computer terminals linked together electronically (for example, in a computer lab, although synchronous conferencing in MOOs can involve participants in remote locations). The teacher presents a discussion topic, which appears on all participants' computer screens. To respond, participants compose messages in an editing buffer and then "publish" them (sending them to all or a subset of the other members of the discussion group) by a "send" command. Messages appear immediately on recipients' screens, appended to previously posted messages. Participants read the posted messages and can respond to whichever ones they choose. Their responses are in turn "published" to all members of the discussion group. This is an ongoing process in which one may compose and send a message at any time, even as other group members' messages are arriving. When new messages appear on the screen, the reader can scroll backward through the file to review earlier comments. Each posted message is identified by the participant's name or alias, although complete anonymity is possible by allowing all students to log in with the same designation. Just as in oral classroom discussions, the teacher can choose to participate actively or to observe students' exchanges of ideas. At the end of the session, the transcript of this text-based discussion can be printed and then distributed to the students at the next class meeting. This transcript can serve as the basis for subsequent oral discussion, composition drafting, grammar analysis, or other activities.

The obvious question at this point is: why would a group of people hold a "discussion" in writing, when they could simply talk face-to-face? The point of using synchronous conferencing is not at all to replace talk but to supplement it with discussion that is governed by a different set of conventions and constraints in order to open up new possibilities for an alternative, or even oppositional, discussion.[2] What synchronous conferencing offers is an entirely different medium of interaction that offers participants the possibility to voice their thoughts at will without interrupting other participants' thoughts or expression. By virtue of being *written*, all participants' comments are available throughout the discussion for review and response—

the most recently posted message need not be the first to be addressed. Participants can not only easily pursue independent threads within the context of a main discussion (much like small group discussions) but also can unobtrusively change from one thread to another.

Before elaborating on this point, let us consider a brief extract of a synchronous conference in order to see how discourse conventions operate. The following session took place during the third week of a second-semester French class. It illustrates not only the dynamics of student-to-student interaction, but also the potential for exploring individual and cultural variation among classmates. The topic was differences between family generations, and students were asked in what specific ways they and their parents were different or alike. Alda and Billy are ethnic Chinese, Kang is Cambodian, Claudia is Anglo-Saxon. I am the instructor. (Intervening messages from other conversational threads have been edited out in order to make the excerpt more readable.)

> *Alda: Je pense que je suis comme mes parents en un sens, nous sommes toujours heureux. Mais en general, nous sommes tres differents. Peut-etre c'est parce que je deviens adulte aux Etats-Unis, et ils habitaient aux autre pays la plus grande partie de temps. Ils aiment les traditions chinois, mais je n'en aime pas trop.*
>
> *Rick: Alda, est-ce que vous participez aux fêtes chinoises, même si vous ne les aimez pas?*
>
> *Alda: Prof. Kern, hier, c'etait le premier d'annee au calendrier chinoises. Je suis retourne chez mes parents, et nous avons celebre. Les premieres trois jours de la nouvel annee sont tres importants. Il me faut celebrer. Je n'en aime pas la tradition trop, mais je (et peut-etre tous les enfants chinoises) aime le premier d'annee. C'est parce que les adultes donnent des poches rouges. Et il y a beaucoup d'argent.*
>
> *Kang: Alda, est-ce que tes parents parle à toi en chinois et tu parle aux parents en anglais? Moi, mes parents ne me parle pas en anglais, mais je leur parle en anglais en meme temps.*

BEST COPY AVAILABLE

*C'est un peu bizarre.*

*Billy: Alda, Est-ce que vous êtes chinoise? Si vous êtes chinoise, avez-vous célebré la nouvelle anneé chinoise hier? Avez-vous reçu beaucoup d'argent de votre famille?*

*Kang: Alda, pourquoi "tu n'aime pas trop" de traditions chinois? Que penses-tu a la NOUVELLE ANNEE de Chinois?*

*Claudia: Alda- J'aime les traditions chinois. Mon petit ami est chinois.*

*Kang: BONNEE ANNEE POUR LES ETUDIANTS CHINOIS!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!*

*Alda: I think that I'm like my parents in a way: we're always happy. But in general, we're very different. Maybe it's because I grew up in the U.S., and they lived in other countries most of the time. They like Chinese traditions, but I don't like them too much.*

*Rick: Alda, do you participate in Chinese holidays, even if you don't like them?*

*Alda: Professor Kern, yesterday it was the first of the year in the Chinese calendar. I went home to my parents' house and we celebrated. The first three days of the new year are very important. I have to celebrate. I don't like tradition too much, but I (and maybe all Chinese children) like the first of the year. That's because the adults give red pockets. And there's lots of money.*

*Kang: Alda, do your parents speak to you in Chinese and you speak to them in English? My parents don't speak to me in English, but I talk to them in English at the same time. It's a little bizarre.*

*Billy: Alda, Are you Chinese? If you're Chinese,*

> *did you celebrate Chinese New Year yesterday? Did you get lots of money from your family?*
>
> *Kang: Alda, Why don't you "like too much" Chinese traditions? What do you think about Chinese NEW YEAR?*
>
> *Claudia: Alda- I like Chinese traditions. My boyfriend is Chinese.*
>
> *Kang: HAPPY NEW YEAR FOR CHINESE STUDENTS!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!*

One notable aspect of synchronous conferencing sessions is the structure of participation and its effect on the way topics are explored. Here, for example, Alda's initial answer to the question stimulated five responses (posted *at the same time*) that introduced three new subtopics: Chinese New Year, differences in loyalty to Chinese traditions, and differences in the use of Chinese and English in Asian students' families. Unlike oral discussion, which proceeds linearly from one comment to the next, interaction in synchronous conferences develops in multilinear and associative fashion. Furthermore, the structure of participation is not determined by the teacher, but collaboratively, by the group. The typical pattern of classroom discourse, consisting of a teacher-initiated topic, student reply, and teacher evaluation of the reply (Mehan 1985, Sinclair and Coulthard 1975) is rendered inoperative: a participant's message is directed to the entire group or to a specific addressee but is rarely produced for (or in the expectation of) teacher appraisal. Moreover, the teacher has no mechanism by which to allocate the floor, which is equally available to all group members at all times. As a consequence, many student comments surface that might never be heard in a normal classroom discussion.

Claudia's and Kang's final messages in the exchange cited above, for example, would most likely be deemed inappropriate in an oral classroom discussion. However, it is precisely the personal nature of such contributions that leads students to remark that they learn more about their classmates from synchronous written discussions than they do in face-to-face oral interaction. For example, following the session cited above, Kang wrote in a composition (here translated into English): "Every Friday after the computer lab session I feel closer to my classmates. Because when we discuss different subjects on the computer I can start to understand their ideas, their situations and, above all, their personalities." Whether this effect is due to the difference in the participant structure, or to the written medium of the interaction, it seems to be a valuable aspect of networked synchronous discussion.

Perhaps the most obvious feature of synchronous conferencing is the level of participants' productivity. A transcript of a fifty-minute elementary language class session typically runs about twelve pages of single-spaced text. Advanced level students generally produce much longer transcripts. In a recent comparison of synchronous conferencing and face-to-face oral discussions on the same topic, with the same students, I found that students had over twice as many turns, produced two to four times more sentences, and used a much greater variety of discourse functions in their electronic conference than they did in their oral discussion. Furthermore, the distribution and direction of turns were radically different in the two conditions, with much more direct student-to-student exchange in the synchronous conferencing condition (Kern 1995).

Synchronous conferencing can thus stimulate writing production as well as vary social roles and interactional conventions for teacher and students. Teacher authority plays a different role when mediated by the written format of synchronous conferences. Everyone participates actively throughout a session: the teacher does not call on one person at a time, and no one person can hog the floor. There is no "cutting someone off" in the middle of an utterance. By immersing learners in writing—their own, their peers', and their teacher's—use of networked conferencing can contribute to the creation of a "writing community" that provides a real sense of audience and that allows peer collaboration to extend beyond group planning and peer editing to the composing process itself.

The availability of a real, on-line audience supports "readerly" writing: participants not only "read to write" (by paying close attention to others' points in order to respond) but also "write to be read."[3] As one student using *InterChange* remarked, "When I send something, and I see it pop up on the screen, I'm thinking about how someone might disagree with my statement. I come up with a kind of counter-argument. I kind of answer myself by thinking about it." This sensitivity to and anticipation of readers' responses is an essential component of effective writing.

Networked communication also affects language use. The discourse produced in synchronous conferencing sessions is a natural outgrowth of students' social interaction, and its form reflects that context. Spelling and grammatical accuracy may suffer but not to the point of incomprehensibility.

Often "chatty" in style, synchronous written exchanges are characterized by direct interpersonal address, rapid topic shifts, and frequent digressions. Just as the *form* of writing incorporates some characteristics of spoken language, so do its *functions* overlap with many purposes normally associated with speech. Writing becomes a channel for lively, spontaneous exchange of thoughts, feelings, and ideas—as useful in developing social relationships and entertaining others as in informing, explaining, and persuading. Writing is not done just to display language knowledge or for teacher validation but for a wide variety of authentic communicative purposes.[4] The written form of synchronous conferencing may also heighten students' awareness of the structure of their own communication by distancing them from it and allowing them to review the discourse visually to find patterns and progressions. Since session transcripts can be printed out and reviewed, synchronous conferencing makes it possible to reflect on and analyze direct interpersonal communication. In other words, synchronous conferencing affords the possibility of adding a recursive dimension to the immediate act of communication (Swaffar 1991). Of course, the degree to which students actually engage in analysis and reflection will be strictly a function of the teacher's creation and management of precise, well-structured learning tasks; it will not result simply from the use of certain technological tools.

The differences between classroom discussion and networked conferencing as outlined above suggest how written spontaneous exchanges can supplement classroom talk. Reconfiguring conventions of interaction and language use, opening new pathways for collaboration and consciousness of one's own linguistic output, and shifting the interpersonal classroom dynamic can all have potentially salutary effects on learners' language and literacy development. Although relatively few studies have examined the effects of synchronous conferencing in language classroom settings, those that have indicate that students are more voluble, interact more with one another, and are more candid in their comments than in oral, face-to-face discussions (Beauvois 1992a, 1992b, Kelm 1992, Kern 1995). A notable finding in these studies is the consistently high level of student motivation and the increased level of participation among students who tended to be reticent in face-to-face oral discussions. The syntactic complexity of learners' language production, and the range of discourse functions used, also appear to be greater during synchronous conferencing sessions than in oral discussions (Chun 1994; Kern 1995). Finally, Beauvois's (1992b) case study of Alex suggests that synchronous conferencing may provide a way to improve low achieving students' attitude and motivation.

From the standpoint of foreign language literacy development, it is important to note that synchronous conferencing and traditional pen and paper writing tend to emphasize different aspects of written communication. Questions of "effectiveness" therefore need to be framed in terms of specific goals. As summarized in Table 1 (see below), grammatical accuracy, stylistic development, coherence, and continuity of thought are more likely to be fostered by pen and paper writing. Synchronous conferencing, on the other hand, tends to encourage fluency (in terms of both speed and quantity of language production), lively responsiveness of expression, a blending of "oral" and "written" language forms and communicative devices, and the voicing of multiple perspectives on issues. The use of synchronous conferencing, for example, would not necessarily be expected to improve learners' essay writing ability (Kern in preparation).

*Table 1*

**Features of Written Communication Highlighted in the Use of the Two Technologies of Writing**

| Pen and paper writing | Synchronous conferencing |
|---|---|
| ▪ Formal accuracy | ▪ Fluency of self-expression |
| ▪ Global coherence | ▪ Interactive responsiveness |
| ▪ Reinforcement of canonical written discourse conventions | ▪ Blend of "orate" and "literate" forms of communication |
| ▪ Uninterrupted exploration of one's own personal voice | ▪ Juxtaposition of multiple voices, perspectives |

Teachers considering the use of synchronous conferencing need to reconcile for themselves the inherent tension between these sets of goals. While synchronous conferencing is clearly not a substitute for normal classroom discussion, nor a panacea for language acquisition, it does offer a novel context for social use of writing as well as a break from traditional classroom interaction patterns.

## Intercultural Exchanges via E-mail: Toward Multiple Perspectives

Another way in which computer technology can support a social interactional basis for reading and writing is by facilitating intercultural partnerships between language learners and native speakers. Two groups, each learning the other's language, can send letters, photos, and cultural artifacts to one another in order to develop ongoing lines of communication and to deepen their knowledge of the other's culture.[5] This kind of exchange has traditionally been done via standard mail, although electronic mail is quickly becoming the preferred medium of written exchange due to its speed of delivery (creating a sense of communicative immediacy), the ability to attach video and sound files, and its much lower cost.[6] To illustrate, I will describe a content-based e-mail project designed to structure and develop cross-cultural dialogue between a group of French students in the U.S. and a group of high school students in France.

In the spring of 1995 my elementary (second semester) French class began an e-mail correspondence with a group of students from the Lycée Frédéric Mistral in Fresnes, France. The previous fall, these *lycéens* had published a book entitled *L'Histoire, mon histoire* (published in 1996 as *Mémoire des migrations*), which was awarded a prize by the Foundation for Republican Integration in France. Their book was composed of individual responses to a question put to them by their history teacher, Sabine Contrepois: "In what way has your family been touched by history?" Since many of the students were members of immigrant families, their stories dealt with wars in Armenia, Spain, Algeria, Angola, Vietnam, and the former Yugoslavia; repression in Poland, Portugal, and Cameroon; colonization in Mali; slavery in the Antilles; political upheaval in Haiti; and resistance movements in Europe. Madame Contrepois' goal was to approach the study of history from a personal perspective, to illuminate the diversity of the students' cultural and historical backgrounds, and to give public voice to a traditionally disenfranchised class of young people. Their achievement was reported in numerous French newspapers, on French television, and in the *New York Times* (Riding 1994).

I contacted Madame Contrepois and proposed an e-mail exchange between her students and my French students at Berkeley. Like her students, mine were of diverse backgrounds and origins. How might their family experiences of immigration and acculturation be similar? How might they be different? We obtained e-mail accounts for our students and devised a plan to maintain the focus of their writing on family histories.

We began by reading the stories published in *L'Histoire, mon histoire*. My students watched segments of a videotaped recording of the students' appearance on *La Grande Famille*, a French television show, to see and hear the young authors discuss their stories orally. My students then wrote their own accounts of how their own family histories intersected with history, and their essays were sent via e-mail to France. Both groups then freely exchanged questions, responses, and comments.

The following exchange took place between Carl, a nineteen-year-old sophomore majoring in American History at Berkeley, and Julie, a nineteen-year-old *lycéenne* studying for her *brevet d'études professionnelles* (vocational certificate) in Fresnes. Julie was one of six students from the Lycée who introduced themselves via e-mail to our class. Her self-introduction, written in English, was as follows:

> Let me introduce myself: I am Julie L'Hote. I have just celebrated my nineteenth birthday. I am now in the second year of the two-year course preparing a brevet which mainly deals with the sales techniques. My school is the "lycee de Fresnes." I live in Fresnes which is located south of the Paris area, in a flat, with my parents and my younger brother. I am very happy and moved at starting exchanging letters with students of one of the greatest universities in the States. I hope our letters will allow us to learn a lot about our differences and to know one another better and to come to an understanding. My text is called "la dechirure" because I tell about my father and my family coming to France after being born and growing up in Algeria. My words convey the sadness they felt when they had to go that heartrending period of their lives. I hope I will hear from you soon.

I asked a group of students to read the essay that Julie had written for *L'Histoire, mon histoire,* and to respond to Julie via e-mail. Her story, in which she tells of her family's uneasy repatriation in France after the French-Algerian War, was accompanied by a color photocopy of her father's Algerian elementary school certificate, dated 1958.

### *LA DÉCHIRURE*

> *Mon père, Serge, est né en 1944 à Annaba en Algérie. La guerre d'Algérie éclate alors qu'il a dix ans. Huit ans plus tard il doit quitter son pays avec un sentiment de rancoeur.*
>
> *Depuis des décennies, l'Algérie était le pays de ma famille. Ils y sont nés, y ont vécu et certains y sont morts, notamment mon grand-père paternel.*

*Algériens et Français, appelés "pieds-noirs", vivaient en parfaite harmonie. Mais un jour, la différence de culture, de religion, de points de vue sur l'avenir de l'Algérie remit tout en cause. Les Algériens commencèrent à se révolter et à demander leur indépendance.*

*Mon père a alors dix ans. Trop jeune pour comprendre, il côtoie toujours ses amis algériens. En 1954, la guerre éclate vraiment. Les Algériens et les pieds-noirs deviennent des ennemis. Les horreurs commencent. Je ne sais ce que ma famille a éprouvé durant cette guerre. Par contre, je sais qu'il y a eu une véritable déchirure quand de Gaulle a donné l'indépendance en 1962. Ainsi ma famille a dû partir en France qui était soi-disant son pays. En France, ma grand-mère et mes tantes pleuraient. L'Algérie leur manquait. La France n'était pas leur pays. Je ne suis au courant que d'un événement qui a marqué mon père: il était avec son meilleur ami, un arabe, pendant un bombardement. Celui-ci a sauté sous ses yeux. Il n'avait que quatorze ans. Cela l'a vraiment choqué.*

*Mon père parle peu de l'Algérie mais je sais qu'il y pense. Tandis que mes tantes et mon oncle en parlent souvent pendant les dîners de famille. Ils extériorisent leur peine mais mon père, lui, se renferme sur lui-même. Je sais qu'il aime l'Algérie, qu'il n'a pas de rancune car il suit l'actualité et souhaite de tout coeur qu'elle s'en sorte. Il a promis à ma mère qu'il nous emmènerait tous là-bas, un jour.*

## TORN AWAY

My father, Serge, was born in 1944 in Annaba in Algeria. The Algerian War broke out when he was ten. Eight years later he had to leave the country with a feeling of bitterness.

For decades, Algeria was my family's country. They were born there, they lived there, and some died there, notably my paternal grandfather. The Algerians and the French, called *pieds-noirs* (black feet), lived in perfect harmony. But one day, differences in culture, religion, points of view on the future of Algeria put everything into question. The Algerians began to revolt and to demand their independence.

My father was ten years old at the time. Too young to understand, he still frequented his Algerian friends. In 1954 the war really broke out. Algerians and *pieds-noirs* became enemies. The horrors began. I don't know what my family went through during that war. But I do know that it was really heart-rending when de Gaulle gave Algeria independence in 1962. My family had to leave for France, which was our so-called country. In France my grandmother and my aunts cried. They missed Algeria. France was not their country. I only know of one incident that affected

> my father: he was with his best friend, an Arab, during a bombing. His friend was blown up before his eyes. He was only fourteen. That was a real shock to him.
>
> My father doesn't say much about Algeria but I know that he thinks about it. On the other hand, my aunts and my uncle often talk about it at family dinners. They externalize their pain but my father doesn't; he closes in on himself. I know that he loves Algeria, that he doesn't have hard feelings, because he follows the news and wishes with all his heart that Algeria gets out of the mess it's in. He has promised my mother that he will take us all back there one day.

Julie's e-mail message and her essay are clearly different in their level of content and elaboration. Because e-mail messages tend to be relatively brief and unelaborated, it is usually necessary to balance spontaneous e-mail messages with prepared essays in students' exchanges in order to provide enough content to spark students' interest and stimulate reflection. Carl's e-mail response to Julie (shown uncorrected and without accent marks) was as follows:[7]

> *Cher Julie,*
>
> *J'ai lu votre histoire avec interet. La guerre d'Algerie n'est pas tres connue aux Etats-Unis. Donc, j'ai appris, de votre histoire, beaucoup d'information sur l'histoire d'Algerie et de France.*
>
> *De plus, j'ai quelques questions pour vous. Vous avez dit que les "Algeriens et Francais...vivaient en perfaite harmonie," mais, tout a coup, les "Algeriens commencerent a se revolter." Dans votre opinion, qu'est-ce que c'etait la plus grande raison pour cet changement? Et pourquoi est-ce que les Francais appeles "pied-noirs"?*
>
> *D'un autre cote, est-ce que votre pere se renferme encore sa peine sur lui-meme. Je pense qu'il y a certains choses pour chaque famille qui sont tres desagreables a discuter. Mais qu'est-ce que c'est le role de la publication de votre histoire sur votre famille? Parlent-ils plus facilement ces jours au sujet de la guerre? Ou est-ce que le sujet est encore tres desagreable? Je crois que la peine a cause de la separation des citoyens de leurs patrie est dificile a comprendre.*
>
> *En fin, je suis content que vous connaissez Berkeley. Berkeley, et la Californie en general, ont des reputations bizarres. Beaucoup de gens, par exemple, pensent que tout l'etat est une grand plage, et les citoyens font toujours du surf. Bien sur, ce n'est pas le cas; nous sommes, en realite, tres ennuyeux.*
>
> *Au revoir, Carl*

> Dear Julie,
>
> I read your story with interest. The Algerian War is not well known in the United States, so I learned a lot of information about Algerian and French history from your story.
>
> Also, I have several questions for you. You said that "the Algerians and the French lived in perfect harmony," but, suddenly, "the Algerians began to revolt." In your opinion, what was the biggest reason for this change? And why are the French called "pieds-noirs"?
>
> On the other hand, does your father still close his pain in on himself? I think that there are certain things in every family that are uncomfortable to talk about. But what effect has the publication of your story had on your family? Do they talk about the war more easily these days? Or is it still a very uncomfortable subject? I think that the pain from the separation of citizens from their country is hard to understand.
>
> Finally, I'm happy that you know about Berkeley. Berkeley, and California in general, have weird reputations. Many people think, for example, that the whole state is a big beach, and its inhabitants are always surfing. Of course it's not the case; in reality we are quite boring.
>
> Bye, Carl

Carl's response shows evidence of content learning (e.g., about the French-Algerian War) but even more importantly, it reflects a good deal of thought about the details of Julie's account. His questions and comments are closely text-based, involving quotes and rephrasings of Julie's words. His first question is a challenging one: Carl identifies the contradiction between "living in perfect harmony" and mass revolt and invites Julie to explain her opinion on the underlying cause of the war. Then he asks a vocabulary question concerning the meaning of *pieds-noirs.* Next he shifts to a more personal level, asking about the impact of Julie's writing on her family's perspective on the war. In Carl's questions we see him incorporate some of Julie's words into his own text (e.g., "…est-ce que votre père *se renferme* encore sa peine *sur lui-même").* The fact that Carl had not yet studied reflexives in class suggests that this text-based social interaction may have contributed to his language learning.

In her response, Julie gives substantive answers to Carl's questions and shows a great deal more elaboration in her writing than she did in her initial e-mail message.

*Carl,*

*Je tiens a te remercier de m'avoir ecrit et de t'etre interesse a mon texte. Je vais donc commencer par repondre a tes questions: Tu m'as demande pourquoi les Algeriens se sont revoltes? car l'Algerie etait un pays colonise par la France, et meme si mon pere et ma famille s'entendaient avec les Algeriens, beaucoup de colons les exploitaient, leur imposaient notre "invasion" de facon parfois brutale. Les Francais d'Algerie s'appelaient et sont toujours appeles "pieds noirs" a cause des bottes noires qu'ils portaient. Lorsque mon pere et ma famille parlent de l'Algerie, ils ne mentionnent jamais la guerre. J'ai rarement entendu le mot "guerre" dans leur discussion, ils preferent se rappeler des bons moments car c'est toute leur jeunesse. La publication de mon texte a emu ma famille car ils etaient contents que je m'interesse a eux mais sinon rien n'a change dans leur facon de penser. La separation de ma famille et de l'Algerie a ete une veritable dechirure car en France, ils n'etaient pas consideres comme Francais mais comme pieds noirs d'Algerie. Encore aujourd'hui ils sont encore un peu a part. Les gens du village de mon pere se reunissent chaque annee pour etre ensemble comme en Algerie. Il est vrai que les Francais pensent que la Californie est un Etat peuple de mannequins montes sur patins a roulettes ou sur un surf. C'est a cause des series americaines qui ont malheureusement envahi la television francaise. J'aimerais savoir ce que les Americains pensent de la France, de Paris, de la Cote d'Azur et bien sur des Francais.*

*Julie*

Carl,

Thank you for writing me and for being interested in my text. I'm going to start by answering your questions: You asked me why the Algerians revolted? because Algeria was a country colonized by France, and even though my father and my family got along with the Algerians, many of the colonizers exploited them, imposed our "invasion" on them in sometimes brutal ways. The Algerian French were and still are called *pieds-noirs* because of the black boots that they wore. When my father and my family talk about Algeria, they never mention the war. I have rarely heard the word "war" in their discussions; they prefer to remember the good times because it's their whole youth. The publication of my text touched my family because they were happy that I was interested in them, but otherwise nothing has changed in their way of thinking. My family's separation from Algeria was a real heart-rending experience because in France they weren't considered as French but as *pieds-noirs* from Algeria. Even today they are still a little apart from the rest. The people from my father's village get together every year to be together, as they were in Algeria. It's true that the French think that California is a state full of models on roller skates or on a surfboard. That's

> because of the American TV series that have unfortunately invaded French television. I would like to know what the Americans think of France, of Paris, of the Côte d'Azur and, of course, the French.
>
> Julie

Julie's response provides Carl with both cultural content and language input. Her thoughtful answers to his questions could stimulate class discussion about links between colonization, immigration, and social cohesion. Or they could spark debate about America's "media colonization" of the world (note Julie's choice of the verb *envahir* [to invade] in her mention of American television shows in France). As it was, our classroom discussion of Julie's essay focused on the French-Algerian War: an important topic in the curriculum, given that in their next French course students would read Camus' *L'Hôte*, in which a French school-teacher must confront issues of duty, brotherhood, and isolation in Algeria during the war.

Concerning language input, one immediately notices that Julie uses the personal pronoun *tu* rather than the pronoun *vous* that Carl had used in his letter. A number of the French correspondents directly addressed this issue in their exchanges with the American students, pointing out that young people getting to know each other use *tu* instead of *vous*. This type of sociolinguistic lesson in the context of real communication with foreign peers is invariably more effective than a didactic explanation of the French personal pronoun system by the teacher.

In Julie's letter we also find many intertextual references (e.g., "*tes questions*"; "*la publication de mon texte...*"; "*une véritable déchirure*"), some of which involve restructured syntax, such as embedding (e.g., "*Tu m'as demandé pourquoi les Algériens se sont révoltés?*"; "*Il est vrai que les Français pensent que...*"). These intertextual references allow Carl to see elements of his own writing reformulated in Julie's writing, providing him with a rich source of "personalized" language input. Carl was pleasantly surprised that he understood everything in Julie's message, despite the occurrence of phrases containing structures that he had not yet studied (e.g., "*Je tiens à te remercier...*"; "*mais sinon rien n'a changé*"; "*ils sont encore un peu à part*"). Arguably, Carl's understanding was facilitated not only by the immediate linguistic context of this letter but also by the common ground established in the previous texts that he and Julie had exchanged. Letter exchanges, because they are dialogic in nature, and therefore prime the reader's expectations, provide an extraordinarily motivating means of developing learners' reading comprehension—particularly at beginning levels, when learners' confidence in their ability tends to be low.

The teacher's crucial task is to create opportunities for follow-up discussions, so that the chains of texts that students produce in these exchanges can be analyzed, interpreted, and possibly *re*interpreted in the light of class discussion or subsequent responses offered by native speakers. Sometimes such explorations are initiated by readers' reactions. For example, one American student who had received a message which began (in English): "You must know that the relations between France and the United States are very complex" was offended by what she perceived as a condescending tone. When asked what precisely had offended her, she responded that the phrase "You *must* know" seemed presumptuous and inappropriate. When the teacher pointed out that in French, the expression *vous devez savoir* generally does not have an imperative force, but is more along the lines of "as you know . . ." the student attempted to reread the message with a more receptive attitude. It is by identifying such "hot points" in the language and exploring the responses they evoke that students and teachers can begin to develop an awareness of how cultural stereotypes are formed and perpetuated.

At other times the teacher may need to initiate the discussion. In the Carl-Julie exchange above, for example, Julie's statement about the French thinking that California is full of models on roller skates and surfboards can be taken simply as an affirmation of Carl's earlier comment about California's reputation, but it can also be seen to go further. Her language (*à cause de*) attributes the cause of this idea not to a lack of accurate information about California but rather to "American TV series that have unfortunately invaded French television," reflecting the rhetoric of the debates about American cultural imperialism which were going on at the time of this exchange. The teacher's task in this instance is to draw students' attention to the way in which an individual "micro" message can reflect a "macro" cultural conversation. The ultimate goal is to bring the native speakers into the act, getting them to engage in an ongoing dialogue with the language learners about not only content, but also the particular ways in which that content is communicated and read.[8]

Like any use of technology, e-mail for language learning entails certain challenges. First, finding a partner class that has access to the Internet can be a significant source of frustration. While this is becoming easier each year, it is still one of the major obstacles to incorporating e-mail into the curriculum, especially for the less commonly taught languages. (See Appendix for information on finding e-mail partnerships and project ideas.) Second, for languages that use non-roman scripts, technical requirements can be steep: computers on both the sending and receiving ends must be specially configured in order to display the appropriate characters. Third, e-mail may obscure important sociocultural differences. As Rice (1996) has pointed out, e-mail communication tends to level the perceived social status of participants (e.g., messages to complete strangers are often written in a friendly, familiar register). This may raise problems in cross-cultural communication when one of the cultures emphasizes social distance more than the other. Furthermore, given the absence of paralinguistic and other contextual cues, learners may have difficulty determining where the other group draws the line between public and private topics, when it is appropriate to use a familiar register, and so on. This is an area where learners have to be quite sensitive readers and interpreters, and it is therefore a vital testing ground for their cultural literacy.

It is too early to know exactly what effects intercultural e-mail projects will have on student learning. While a number of descriptive accounts of projects have been published (e.g., Avots 1991; Barson 1991; Cononelos and Oliva 1993; Kern 1996; Lunde 1990; Rosenbusch 1992; Soh and Soon 1991; Suozzo 1995; Warschauer 1995), there have not yet been any in-depth data-based investigations of what students actually learn in these projects. What is important to recognize is that e-mail, like synchronous conferencing, introduces new possibilities as well as limitations compared to non-electronic forms of written communication. Table 2 below summarizes some of these contrasting features.

*Table 2*

**Comparison of Features of Written Communication via Pen and Paper and E-mail Technologies in Foreign Language Classrooms**

| Pen and Paper writing | Electronic Mail |
|---|---|
| ■ Normally limited audience (teacher) | ■ Contact with real people outside the classroom |
| ■ Often limited communicative purpose (display of competence) | ■ Wide range of communicative purposes (informing, persuading, etc.) |
| ■ Tends to be perceived as relatively permanent and 'on record' | ■ Tends to be perceived as relatively ephemeral and disposable |

| | |
|---|---|
| ■ Intensive, recursive process that fosters elaboration and development of ideas | ■ Emphasis on speed and succinctness of expression |
| ■ Adherence to formal norms (language, genre, style) generally plays more important role | ■ Adherence to formal norms tends to be relaxed (e.g., mixing of oral/written genres, grammar/spelling mistakes) |

Among the advantages, e-mail offers a relatively simple way of bringing learners into regular contact with native speakers. Such contact can provide real purpose and motivation for learning vocabulary and grammar and foster a deep personal involvement with the language. Moreover, the dialogic structure of letter exchanges can help learners to *predict* meaning because what one correspondent says and asks will create certain expectancies to be satisfied by the other correspondent's response. As we have seen, e-mail exchanges can also contribute to learners' metacommunicative awareness for, as misunderstandings arise, learners can refer back to the written record of what has been previously said in order to try to pinpoint what led to the misunderstandings. On the other hand, the tendency for social status differences to be leveled and standards of formal accuracy to be relaxed in e-mail communication might, in the absence of other forms of contact, contribute to negative impressions among native speakers who are not accustomed to dealing with language learners.[7] One obvious way to avoid this situation is not to rely exclusively on e-mail, but to combine it with the use of better edited letters and other documents, as in the exchange cited above.

E-mail can support cultural learning by providing new, alternative perspectives. Learners can explore cultural differences within the framework of personal connections with real individuals, to supplement their study of textbook materials. For example, when American learners receive detailed personal accounts of life in twenty different French families, they can suddenly see the limitations of global generalizations in textbook portrayals of "the French family." Of course, by themselves e-mail exchanges might well lead to superficial apprehension of foreign cultural phenomena because of the purely personal frame of communication. This is where readings in textbooks and other sources come in—to provide learners some critical distance and counterbalance to what they read in their personal e-mail exchanges. The comparison of perspectives from multiple sources can thus potentially (i.e., when supported by the teacher) foster not only students' cultural learning but also critical thinking about what they learn through teachers, textbooks, and other media.

Finally, in the process of reading and responding to questions about their lives and their world, students may come to understand their own culture better. When learners are faced with the task of making their own world comprehensible to someone who does not necessarily share the same cultural background and values, they are obliged to reflect and think critically about their ordinary experience in relation to the other group's reality.

## Social Encounters in Cyberspace

Among the newest and most novel environments for social interaction and collaborative learning on the Internet are MUDs (Multiple User Domains), MOOs (Multiple user domains Object Oriented), and MUSHes (Multiple User Shared Hallucinations). These are electronic spaces where people can meet and interact in a text-based virtual reality environment. The earliest MUDs were designed as science-fiction game environments (e.g., *Dungeons and Dragons*), but now serve primarily as electronic meeting places for particular discourse communities. In ESL and foreign language circles, MOOs have become increasingly popular in recent years. Like synchronous conferencing (e.g., *InterChange*, *Aspects*, Internet Relay Chat), MOOs allow individuals to converse in writing with single individuals or with groups. But MOOs are considerably more complex communication environments. Based on spatial metaphors, MOOs are organized as geographic locales and are divided into "rooms" where participants may congregate and interact.[10] Users can create and "own" their own rooms, as well as various objects within them (e.g., a blackboard, a cup, a glove). Once created, objects can be manipulated and shared with others. Participants navigate from room to room by typing directional commands (e.g., "north," "west," etc.) or by "teleporting," which allows immediate transport to rooms not adjacent to one's present location. To represent themselves in this virtual space, users create characters with names and detailed descriptions. Controlled by simple commands, each user's self-defined character can "speak," "move," "gesture," "think," or "emote" (e.g., smile, frown). Since users can extend themselves in cyberspace through movement and through construction of new rooms, MOOs are dynamic social environments that are continually growing and evolving.

MOOs created specifically for language learners and teachers include: schMOOze University for ESL/EFL, the MOO Français for French, MundoHispano and ArdaMOO for Spanish, MOOsaico for Portuguese, MorgenGrauen and UNItopia for German, Little Italy for Italian, and SvenskMUD for Swedish.[11]

To illustrate, let's visit schMOOze University, a place where learners of English as a second or foreign language can meet and have written conversations in real time. After connecting,[12] I am greeted by the following message:

> You have connected as a Guest to schMOOze. We want our Guests to feel welcome here, so as a Guest you can give yourself a name and description. This way you won't be an anonymous guest, but yourself. —schMOOze Management.

After typing in a name and a description of my character, I am told that I am at the Entrance Gates, a location described as follows:

> The Entrance Gates
>
> These are the entrance gates to schMOOze University. To the north you can see a carved stone archway leading to the tree lined mall of the campus. Guests and new players might want to head directly to the Beginner classroom by typing CLASSROOM.
>
> To find out where things are on campus, just type MAP.
>
> <==The campus clock tower reads 10:01 a.m. EDT==>
>
> You see a newspaper, Suggestion-Box, Mission Statement, map, and TREASURE HUNT here.
>
> Obvious exits: North and Classroom
>
> Welcome to schMOOze! Please type HELP MANNERS before continuing.

Social protocol is very important in MOOs. When I type "help manners" on my computer I get the following information:

> RESPECT OTHER PEOPLE. Citizens here are of all ages and come from many different parts of the world. Please do not offend others with your language or actions.

BEST COPY AVAILABLE

> ALWAYS BE POLITE. It is always polite to ask permission before entering someone else's home. Please use the verb KNOCK <player> before @joining someone.

I am now eager to meet someone, so I type "@who" to find out who else is present and where they are. I see that someone called Hang has just logged on and is in another room. After "knocking" and being invited to enter, I join Hang in his own room, called PAT SIN RANGE, which is described on the screen as follows:

> PAT SIN RANGE in the north east of Hong Kong which consist of eight mountains. On 10 FEB 1996, there was a terrible forest fire. Five students and teachers die in that fire. The teachers are very courage since they protected students but lose their life. However their fame will never die. So i make my room as this name to celebrate them.
>
> Obvious exits: out
>
> Hang is here.
>
> Rick [Guest] has arrived.
>
> Hang asks, "hi where are yuo.. you from?"

I respond, and my utterance appears in the second person on my computer ("You say, 'Hello Hang, I'm from California.'"), but in the third person on my interlocutor's computer ("Rick says, 'Hello Hang, I'm from California.'"). We continue our conversation for fifteen minutes or so, talking about the fire, about Hong Kong, and about California. At one point I tell Hang that I am a novice MOO user, and Hang gives me some procedural directions.

> Hang says, "type @who then you can see whom in the moo"
>
> You say, "Thanks, Hang"
>
> Hang says, "you are welcome"
>
> Hang says, "if you want to join anyone who now in another room, you need type knock <the name of player> and then a.. obtain... after their consent you type @join <the name of player>"

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Now at this point there is a long "silence," and I am suddenly not sure how to read the intent behind Hang's messages. Is he simply picking these commands at random, and telling me about them for my future reference? Or is he ending our conversation and asking me to leave his room? In the absence of extralinguistic cues I feel lost. Not knowing exactly what to say at this point I finally ask: "Are you staying here for a while or are you leaving?" Hang responds straightforwardly, "I will stay here now," which still leaves me wondering whether I ought to be staying or be leaving myself. It is not until Hang's "non-verbal" message comes that my lingering doubts are allayed:

```
Hang smiles
Hang says, "you try to type :smiles"
:smiles
Rick [Guest] smiles
Hang exclaims, "you success!"
```

And I indeed felt successful, having learned to interact not only verbally but "visually" as well. It is this kind of communicative contact and cooperative learning, mediated exclusively through writing, that makes MOOs so intriguing and engaging. Although a native speaker of English, I felt I still had much to learn about communicating in this new environment; the feeling was very much like that of visiting a foreign country for the first time. The intricacies of new conventions loomed large in my mind. Fortunately, in Hang I had found a patient guide.

Because MOOs are constructed by their regular users, they tend to engender a strong sense of community among participants. "Regulars" become well known to one another, and very soon a group history develops, with shared values and interactional norms. Rooms, or locales, give structure to what would otherwise be a vast electronic space, and offer a stable, familiar place to which one can return as often as one likes, and where one can meet both familiar as well as new "faces." The locational stability of MOOs, the possibility of creating and controlling one's own character, room, and objects, and the exhilaration of spontaneous communication with people from different parts of the world can, for some, offer a comfortable sense of social integration that may be lacking in their "real" lives. Small wonder that some dedicated enthusiasts allegedly spend most of their waking hours in MOOs.

From a literacy standpoint, MOOs create a bridge between written and oral communication. Although much of the verbal exchange in a MOO is decidedly "interactive" or "conversational," it is nonetheless mediated by writing. Movements, actions, and gestures are initiated by written commands and are represented to participants as narrative statements, sometimes elaborated by the computer itself (e.g., when Wendy types :smiles it might appear on the computer as "Wendy smiles beguilingly to show you her white teeth"). The basic vocabulary and punctuation conventions of narrative dialogue are introduced automatically (and therefore made available as "input" for learners). For example, when one types a question mark at the end of a "say" command (e.g., *say How are you?*), what appears on the screen is *You ask, "How are you?"*; typing an exclamation point (e.g., *say I'm fine!*) produces *You exclaim, "I'm fine!"*. Descriptions of guests, permanent characters, robots, locales, rooms, and objects are all provided in writing, as are navigational instructions, help files, behavior code policies, and so forth. As MOOs are based on a spatial metaphor, they create their own "virtual" context for interaction. Participants know, for example, where they are and what the room looks like, who is there with them, what they look like, and what they are doing. The interpretation of utterances and actions can often be facilitated by this jointly constructed—and *textual*—context. The features of written communication in MOO environments is summarized in Table 3 below.

*Table 3*

**Comparison of Features of Written Communication via Pen and Paper and MOO Technologies**

| **Pen and paper writing** | **MOO Environments** |
|---|---|
| ■ Writer supplies and controls all text | ■ Writer's input is transformed by MOO (i.e., not an exact input-output match) |
| ■ Formatting and punctuation are entirely writer's responsibility | ■ Formatting and some punctuation handled by the MOO |
| | ■ MOO-specific commands must be used, but are not visible in the language output |
| ■ Imagined, anticipated interaction with reader | ■ Interactive environment (even in the absence of an interlocutor, one's writing allows one to navigate through locales, meet robots, etc.) |

| | |
|---|---|
| ■ Overt response from reader (if any) is deferred well past the moment of writing | ■ Expectation of immediate response to writing (either from other participants or from the MOO itself) |
| ■ Allows one-to-one or one-to-many communication | ■ Allows one-to-one, one-to-many, *and* many-to-many communication |

Of course, all this means that students have to learn a new set of conventions in order to navigate and communicate in a MOO environment. For example, they must learn a considerable number of MOO commands if they are to become "fluent" participants, adding a layer of complexity to an already complex process of verbal interaction. While some teachers may see this as a significant obstacle, it has been my experience that most students learn the commands they need very quickly. Moreover, the need to focus explicitly on a new set of rules and conventions in the MOO microcosm may (when the link is identified by the teacher) contribute to learners' understanding of the importance of rules and conventions in all varieties of discourse in the larger macrocosm of their verbal communication.

Electronically-mediated social environments such as MOOs can provide significant opportunities for observing and interpreting others' language and behavior, expressing oneself (or one's persona) in language and behavior, and interacting with others. This interaction is mediated by reading and writing, but depends to a substantial degree on participants' knowledge of spoken language and their ability to interact socially. Of course, as in all collaborative learning environments, learners both produce and are exposed to many grammatical errors in the process. Research on errors in learner-learner oral discourse has shown that error rates are no greater when learners interact with their same-level peers than when they interact with more competent speakers (e.g., Porter 1983, cited in Long and Porter 1985). Whether this holds true when learners interact in writing and *read* their peers' spelling and grammar errors, however, remains to be researched.

The virtual encounters made possible by MOOs are ideal contexts for role-playing and acting in situations that may be outside the realm of one's personal experience. MOO participants can leave their "real" identities aside and construct new ones at will, becoming entirely textual beings, interacting with others in a silent, writing-mediated world. "When I got to know French Sherry I no longer saw the less confident English-speaking Sherry as my one authentic self," writes Sherry Turkel in her book *Life On the Screen* (p. 261). It may be that the construction and reconstruction of identities made possible in on-line virtual environments will give voice to learners' "other language" selves, creating an inner dialogue that may lead to greater self-understanding and perhaps self-transformation.

In sum, MOOs bring geographically dispersed people into a common virtual space. Within that space, they use language to overcome the limits set by the technology. They create their own rooms and artifacts through verbal description. They address the lack of visual clues that accompany face-to-face communication by introducing them linguistically. And of course they enter into relationships and negotiate common rules of social conduct through language. In the process, they fabricate a textual reality resistant to the actual reality of individuals sitting in front of keyboards and luminescent screens. It is perhaps the MOO's seemingly infinite potential for recreation of the self in interaction with others that attracts people to the medium and motivates them to return.

It is the very extremity of this potential, however, that raises questions in many teachers' minds about the contribution that MOOs might make to students who must learn to function in "real" language contexts. To what extent can such manifestly "created" and protean textual environments support our general learning goals?

As is true for all of the other uses of technology discussed in this article, whatever real learning students derive from participation in a MOO will result more from their teachers' involvement than from their mere use of the technology itself. What MOOs provide is a unique set of conventions for written communication. Learning these unique conventions will not in itself do anything to enhance students' ability to communicate in non-MOO contexts. What *can* potentially contribute to students' learning and communicative ability, however, is their *reflection* on their written interactions: how the MOO's particular discourse conventions were used to certain effects, how misunderstandings developed or were avoided, how "emotive" and "non-verbal" messages contributed to the interpretation of verbal exchanges, how the "definition" of a room and the configuration of its space might have affected the interaction of its visitors, and so on.

Since communicative interactions *and their contexts* are encoded in written form, MOOs offer an ideal opportunity to explicitly examine the *choices* that participants make in their efforts to design meaning. In the above exchange, for example, students could consider Hang's choice to make his room a memorial to celebrate the teachers who lost their lives in the Pat Sin Range fire. Would an American student in Hong Kong likely have created such a room? How might the description influence the discourse within the room? What is the effect when Hang "nods" (instead of speaking) when I introduce myself? What might I have done to clarify Hang's communicative intent (e.g., if he had not smiled and taught me to smile)? The teacher's structuring of tasks that demand such reflection is essential, for although the experience of using a MOO may be enjoyable, it will probably not in itself lead to increased sensitivity to cultural differences or to greater metacommunicative awareness.

## Conclusion

Over the past decade we have witnessed a shift in perspective on the role and function of computers in language teaching. Whereas computers were first viewed as drill and test machines well suited to improving learners' mastery of language forms, they are now most often used as a medium for quick, casual communication, in which formal accuracy is of secondary importance. Originally intended for independent use outside of class, computers have increasingly been used *collaboratively* and *in* class. Once thought to be a means of replacing certain teacher functions, computers have proven to be of far greater pedagogical value when their use is thoughtfully structured and guided by teachers. In short, the current trend in the use of computers in language teaching is toward providing increased, rather than decreased, human contact. This humanization of technology is consistent with the humanistic goals of communicative language teaching and has important consequences for literacy.

Networked computer environments can foster the development of literacy and cultural literacy in a number of ways. First, worldwide networks allow learners to have ongoing contact with geographically distant peers and to form learning communities that cross local and national boundaries. Although some have argued that computer networking will create a homogeneous global village in which differences in race, gender, religion, and nationality are made invisible and therefore neutralized, networked communications have so far tended, if anything, to accentuate the rich and fascinating diversity of human experience, rather than its commonality. The motivation that real interpersonal contact provides may lead learners to read more, to write more, and to think more about what they read and write.

Second, the process of negotiating meaning across linguistic and cultural boundaries can not only enhance learners' communication skills and enrich their knowledge of the other's culture but also provide a context for viewing one's own culture from another group's perspective, ultimately leading to better self-understanding.

Third, by altering traditional classroom discourse structures, electronic conferencing may not only allow some learners greater opportunity to communicate but also increase their awareness of those very classroom discourse conventions (and the power relations reflected in them) by providing an alternative set of conventions in which to operate. In this respect, local area networked discussions might provide an effective platform for critical pedagogy approaches. Furthermore, because learners' communication is written (and therefore recursive) it may facilitate reflection *during* communication as well as afterwards, therefore contributing to learners' metacommunicative awareness.

Media pundit Marshall McLuhan popularized the idea that we shape our technological tools and then they shape us. As language educators we stand at a critical juncture. The increasing ubiquity of computers in educational institutions, as well as in society in general, will undoubtedly have profound effects on the ways we read, write, and communicate with other people. It is imperative that we attempt to understand the nature of new technologies in order to take a stand on which uses of technology will likely serve our goals and which will not. Our decisions should be based on thorough knowledge of our local setting and instructional needs as well as on an understanding of the capabilities and limitations of the available technologies. Teachers, not technology, are the key to improved language learning and cultural understanding. Nevertheless, it can be hoped that technology will help us to achieve that end by opening up new and productive connections to other peoples and other worlds.

## Notes

1. For more information on *InterChange*, contact the Daedalus Group, Inc., 1106 Clayton Lane, Suite 248W, Austin, Texas 78723. For information on *Aspects*, contact Group Logic, 1408 N. Fillmore St., Suite 10, Arlington, VA 22201.
2. Oral classroom discussion does not, of course, preclude the possibility of shifting the rules of discourse—in fact, a teacher's ability to lead effective discussions always involves flexibility in opening/narrowing the floor, increasing/lessening guidance, and so on. What synchronous conferencing provides, however, is a discourse environment that by its nature engenders rules of interaction that are difficult to achieve in oral

classroom discussions, allowing discussions to be restructured in a way that seems "natural" for both students and teachers.

3. In using the phrase "readerly writing" I am not alluding to Roland Barthes' notion of "readerly" and "writerly" texts (Barthes 1970). What I am calling "readerly writing" is writing that takes an anticipated reader's views, beliefs, preconceptions, and informational needs into account—in other words, producing a maximally understandable text for a particular envisioned reader. Barthes' use of "readerly texts," on the other hand, refers to texts that place the reader in the relatively limited position of either accepting or rejecting them—texts that do not invite "writing" on the part of the reader.

4. Chun (1994) reports that learners engaged in synchronous written discussion gave more feedback to one another and exhibited a broader range of their sociolinguistic competence in greeting and leave-taking, requesting confirmation or clarification, and apologizing, than in their oral classroom discourse.

5. Global community learning projects are of course not new. They are part of a long tradition of classroom partnerships, perhaps best exemplified by Célestin Freinet's *Mouvement de l'École Moderne* (Modern School Movement), established in Europe in the 1920s. Freinet, a French school teacher in Bar-sur-Loup (Provence), initiated an exchange of student writing and "cultural packages" (consisting of local artifacts, flowers, fruits, fossils, post cards, photos, figurines, and so forth) with a partner class in Brittany (Freinet 1981, p. 39). This first interschool exchange led to other school partnerships, and gradually the Modern School Movement grew to include some 10,000 schools around the world (Cummins and Sayers 1995, p. 126). Freinet's collaborative pedagogy, based on social interaction and community engagement, also encouraged reflection on learning and practice. The feedback from learners and teachers at other sites allowed learners to consider different perspectives on common questions, problems, and issues.

6. The cost of e-mail transmission is low. The cost of computer equipment is, of course, significant. This raises the important issue of differences in access to technology across educational institutions. While research universities typically enjoy well-equipped and well-supported computer labs, many community colleges are hard-pressed to make any computers available to students and faculty. Such inequities are not

easily resolved, but their resolution certainly begins with the consolidated and persistent efforts of teachers to inform administrators of their needs for adequate computing facilities and support.

7. At the time of this exchange, using orthographic accents in e-mail messages was problematic. Recently, however, software improvements have made it possible to include accents in e-mail messages.
8. Many teachers are justifiably concerned that their students cannot discuss such issues in the target language. It may be that at beginning levels, a "text lab" could be established outside of the regular class meeting times (for those programs that use only the target language in beginning language instruction). Students would start by discussing texts in their native language. The teacher would provide vocabulary and structures as needed to facilitate the gradual transition to greater use of the second language in these discussions.

   Furthermore, at the beginning level, students' background reading need not all be in French. Carl, for example, could find a good deal of quality material written in English on the Franco-Algerian war with which to fill in the gaps in his knowledge of this important period of French history.

   Nor is the particular language that students use to write their e-mail messages necessarily a critical issue. For beginning students, use of their native language will allow them to deal with much more sophisticated cultural issues than would otherwise be possible. What *is* important is close attention to the details of language use in the texts they receive and create, and consideration of how those details contribute to reader interpretations, in whichever language the messages are written. It is important that even beginning learners, who lack the linguistic wherewithal to cope with elaborate discussion in another language, be able to participate in this kind of project, for they will learn a great deal about the other culture (as well as about their own) while they are learning the rudiments of the language.
9. Consider, for example, one francophone reader's reaction to learners' errors in a French newsgroup: "...je ne sais pas combien de temps je vais rester sur cette liste: les fautes d'orthographe et de grammaire que je decouvre sont pour moi comme des gifles culturelles... je n'y peux rien, je suis comme ça!" (Paramskas 1993, p. 128).

10. "Room" is a somewhat misleading term, since players' personal locales may be a garden, a mountain top, a swimming pool, or any other environment they can imagine.

11. Telnet addresses for these MOOs are as follows:

| | |
|---|---|
| schMOOze University (EFL/ESL): | schmooze.hunter.cuny.edu 8888 |
| Le MOO Français (French): | moo.syr.edu 7777 |
| MundoHispano (Spanish) | europa.syr.edu 8888 |
| ArdaMOO (Spanish) | telnet lince.las.es 7777 |
| MOOsaico (Portuguese): | moo.di.uminho.pt 7777 |
| MorgenGrauen (German): | mud.uni-muenster.de 23 |
| UNItopia (German): | infosgi.rus.uni-stuttgart.de:3333 |
| Little Italy (Italian): | little.usr.dsi.unimi.it 4444 |
| SvenskMUD (Swedish): | svmud.lysator.liu.se 2043 |
| Virtual Classrooms MUSH | risky1.ssg.comp.uvic.ca 6250 |

A most useful starting point for exploring MOOs is the following World Wide Web address, where one can find orientation information, a list of common commands, and direct access to over twenty different MOOs: http://www.itp.berkeley.edu/~thorne/MOO.html

12. One can connect to MOOs via Telnet. For MOOs that allow guests, type *connect guest* at the login prompt, and follow the instructions. For MOOs that require a permanent character, follow on-line instructions in the MOO introduction. Basic MOO commands are as follows:

| | |
|---|---|
| @who | find the location of others on the MOO |
| @knock [name] | knock on [name]'s door to see if you may enter |
| @join [name] | join another player in a room |
| look here | read description of the room you are in |
| look me | read description of yourself |
| look [name] | read description of other player |
| say [message] | say something to other players in room |
| @quit | log out |

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## Appendix: Selected Internet Resources for Language Teachers

- IECC (Intercultural E-Mail Classroom Connections) is a huge electronic mailing list that has recently divided into a number of related lists, according to specialized topic and audience, as follows:

  IECC (for primary and secondary teachers seeking partner classrooms)

  IECC-HE (for higher education teachers seeking partner classrooms)

  IECC-PROJECTS (all levels, announcements of collaborative, e-mail based projects)

  IECC-Surveys (for assistance in carrying out survey or questionnaire projects)

  IECC-DISCUSSION (general discussion of issues tied to intercultural e-mail partnerships)

  As of July 1995, over 3,800 teachers from 42 countries were represented on the IECC lists (Rice, 1996).

  To subscribe to one of these lists, write the word *subscribe* on the message line and send to the appropriate address below:

  iecc-request@stolaf.edu
  iecc-he-request@stolaf.edu
  iecc-projects-request@stolaf.edu
  iecc-surveys-request@stolaf.edu
  iecc-discussion-request@stolaf.edu

  IECC is not designed for finding individual pen pal exchanges. For individual pen pals, subscribe to penpal-l@unccvm.unc.edu by writing a one line message: 'subscribe penpal-l [your name]' message to LISTSERV@unccvm.unc.edu

- The Usenet newsgroup: *alt.education.email-projects* supports discussion of international e-mail projects at the university level.

- Orillas: (from de orilla a orilla, 'from shore to shore') is an international clearinghouse for promoting long-distance collaborative teaching partnerships. Using e-mail and computer-based networking, paired classes can develop international and cross-cultural projects such as dual community surveys, contrastive geography projects, and comparative oral history and folklore studies. Contact the codirectors Kristin Brown (krbrown@igc.apc.org), Enid Figueroa (efiguero@orillas.upr.fred.org), or Dennis Sayers (dmsayers@ucdavis.edu). The Orillas web page is located at http://oeon-line.com/~globalvp//gvpmeunu.html. (See also

Dennis Sayers, 'Distance team teaching and computer learning,' *TESOL Journal*, 3, 1: 19–23, 1993.)

- TCHR-SL is a clearinghouse for ESL/EFL class partnerships, based at Latrobe University in Australia. The emphasis is on developing both English language skills and intercultural learning. Send subscription requests to announce-sl@latrobe.edu.au.
- The E-mail Pen Pal Connection is a World Wide Web site for native English speakers and ESL/EFL learners worldwide. Address: http://www.interport.net/~comenius/pen-pal.html
- For information on using e-mail in language teaching, see (Warschauer, 1995a). Ordering information can be obtained by writing e-mail to publ@tesol.edu. Information can be also found at the following World Wide Web site: http://www.lll.hawaii.edu/markw/pub.html
- For a comprehensive list of network-based language learning project descriptions, see (Warschauer, 1995b). Ordering information can be obtained by addressing e-mail to sltcc@hawaii.edu. Information can also be found at the following World Wide Web site: http://www.lll.hawaii.edu/markw/vircon.html

# Write to Speak: The Effects of Electronic Communication on the Oral Achievement of Fourth Semester French Students

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## Introduction

Much has been written about the positive effect of word processing on the writing of first language students and its benefits have been confirmed by research studies (Hawisher and Selfe 1989; Selfe and Hilligloss 1994; Pennington 1995, 1996). Recent explorations into the use of e-mail to connect students in asynchronous communication attest to its distinct capacity to encourage student interaction (Walthers 1994; Warschauer 1995). Since 1992, studies have shown the affective and social benefits of electronic writing for communication on a local area network (LAN). Data collected in these studies support the contention that electronic discussion lowers the affective filter associated with student production and enhances student participation in class (Beauvois 1992a 1993, 1994, 1996a; Cononelos and Oliva 1993; Day and Batson 1995; Faigley 1992; Kelm 1992; Kemp 1993; Kern 1995; Nicholas and Toporski 1993; Slatin 1992; and Vaché 1994).

Explorations into the effective use of e-mail and other wide-area network procedures are now underway in many institutions at various levels of second language study. We are beginning to understand that both e-mail (Warschauer 1995) and LAN communication (Beauvois 1992a, 1992b, 1996b) bridge a communication gap for the student with limited linguistic skill by creating a "conversation in slow motion" that allows students time to reflect and compose before communicating—something that is not possible in oral exchanges of information. More student participation and engagement in this student-driven electronic environment has caused a radical change in the nature of classroom discussion that, while written, is in fact also very conversational (Bump 1990; Butler 1992; Faigley 1990; Kemp 1993; Kinneavy 1991; Peterson 1989; Slatin 1991).

We are also aware that one of the essential goals of the language class in today's world is to produce *speakers* of living languages. As economic ties between countries develop, and the image of "Global Village" becomes a reality, the emphasis in the profession is on oral proficiency for very practical reasons of communication. To date, however, no data support the benefits of computer-mediated communication in a second language as facilitating the oral acquisition of that language.

In recent times, as researchers gather more data on electronic exchanges (e-mail, computer chat, MOOs, etc.), it has seemed to many that there must be a carryover from this intense writing practice to the acquisition of the spoken language. Until now, this has been mostly an intuitive assumption. The purpose of the pilot study described in this article is to examine, under controlled conditions, whether a link between written and oral communication can be established.

## Description of LAN Communication

In synchronous, real-time LAN "chat" communication, each message appears on the screens of all participants connected to the network as the author writes it. The instructor stimulates discussion with a few initial questions aimed at sparking student interest in the topic and encouraging their participation and production. The on-line participants then read the messages sent by the instructor and their classmates, reflect, compose their own messages, and send them to the ongoing electronic polylogue scrolling on the monitor in front of them.

In previous studies of the effects of LAN communication on language acquisition using the *Daedalus* software, students have been given the freedom to "discuss" texts as they wish by composing electronic messages both on and off topic (Beauvois 1992a; Butler 1992; Kelm 1992; Kern 1995; Peterson 1989). The activity is characterized by its student centeredness, intense target language practice, and the freedom of expression that the process encourages.

In the present study, for the purpose of assessing student progress and achievement, the communicative activities conducted on the LAN were somewhat more controlled by instructor planning and requirements than in previous studies. Students were asked, for example, to answer all the questions posted by the professor, as they would be required to do in the regular classroom, as well as to complete certain exercises on vocabulary. Some examples of those exercises can be seen in Figures 1 and 2.

## The Current Study

### *Participants*

A total of 83 students enrolled in four sections of fourth-semester French at the University of Tennessee, Knoxville (UTK), participated in this pilot study in the Spring Semester of 1995. These students had completed three semesters of French at UTK or the equivalent. Students were randomly assigned to the four sections of French 212: two sections met in the IBM computer lab for one of three weekly meetings; the other sections held all meetings in the regular classroom with no computer component. Students were not informed beforehand of the computer component in the experimental section. No students transferred out of the lab sections. No prior computer skills were required. Enrollment in the experimental group was limited to 20 students due to the number of computers available in the lab. The other classes were limited to 24 students per section with the final numbers for the experimental (computer lab) group being N=37 and for the control group N=46. Of the 83 students, 49 were female and 34 were male.

### *Instructors*

The three instructors (two females and one male) involved in the study had all taught the French 212 course before, and all had experience with the software used in the computer lab. Two graduate student teachers taught both the experimental groups and control groups (three sections total); one instructor, a lecturer with the most teaching experience, taught one of the control groups.

### *Setting: Computer Lab*

In the absence of a specific language laboratory, a remote lab site was used for the study. There were twenty-one networked IBM 486 computers, one station per student and one for the instructor. The instructor taught students the log-in procedures on the first day of lab class. Students experienced only minor difficulties with the technology after that. The instructor sat at a workstation at the front of the room. All communication was done electronically in French.

### Setting: Classroom

The classrooms for the control groups had moveable desks to facilitate small group and whole class instruction, as is customary for all French language courses at UTK. Researcher observations and video tapes of the control groups' classrooms confirm that during small group activities the instructor moved from group to group giving help and encouragement as students asked and answered questions about the texts under discussion. French was used exclusively as the language of instruction in these two sections. The same text and personal questions were used in both environments. Students in the regular classroom were given practice sheets with questions to discuss orally in small groups; students in the lab had the same questions posted on the computer screen for electronic LAN discussion.

### Curriculum of French 212

At UTK, French 212 is designed to integrate all the elements of the basics of beginning-intermediate French. In this final required semester of French, it is the purpose of the syllabus to continue to emphasize the communicative aspects of language learning and to add reading as a supplementary element.

The curriculum of French 212 consists of the final chapters of *French in Action* (FIA, Capretz 1988, second edition), a video-immersion method taught exclusively in the first three semesters of French, and a selection of short stories from the reader *Les récrés du Petit Nicolas* (Goscinny and Sempé 1976) which is used in the final six weeks of the semester of French 212. Due to constraints in time and equipment the FIA classes follow a clearly-defined syllabus (after the first week) for the three class periods (50 minutes each) per week:

1. Day 1: the weekly quiz followed by the presentation of the next chapter's video teleplay;
2. Day 2: exploitation of the video material using the textbook's content and personal questions called *Mise en Œuvre* (M/O) and *Mise en Question* (M/Q);
3. Day 3: the pedagogical part of the video and workbook (grammar) exercises.

This study examines the effect of the Day 2 communicative activities (the M/O and M/Q question series and workbook vocabulary exercises) on student achievement in oral skills. Care was taken in the planning of this study to reduce the effect of unavoidable variables in the following ways:

1. Time: Three of the four sections were afternoon classes.
2. Random class assignment: There was no prior selection of students for either the computer or non-computer sections.
3. Instructors: Two of the teachers who taught the lab sections also taught the regular class sections. The third instructor taught only one section of the control group. As mentioned above, instructors in both groups had experience with the materials used in the French 212 course. Teaching experience was slightly balanced in favor of the control groups in that the instructor for one of the control groups had been a lecturer for several years and was also coordinator of the 212 course.
4. Curriculum: The syllabus and curriculum for French 212 had the same content and assignments for all four sections. The only difference in the two groups was that the experimental group had one class a week of electronic communicative activities and the control group did these activities orally in the regular classroom.

As part of the curriculum for French 212, students took three oral exams, one each in February, March, and May 1995. These oral exams formed the basis for establishing achievement differences between the control and experimental groups.

## Methodology

The methodology used in this study follows. In the control French 212 classroom students were placed in groups according to ability, interest, or personality as each instructor desired. They received written exercises taken from activities in the *French in Action* materials to use as a guide for their oral practice. These exercises/questions were exploited by the instructor to review both the content and the grammar points emphasized in the chapter. Periodically the instructor would ask the individuals from each group to report on their group's discussions. Sometimes, based on the general interest of topics, the whole class would talk about a given subject for several minutes before going back to the small group discussion.

The following example, taken from workbook lesson 38 of *French in Action,* presents a very specific vocabulary exercise that is designed to draw student attention to the use of specific usage of "verb plus infinitive" from the lesson. The more open-ended discussion questions follow (see Appendix 1 for translation). The same exercises were used in both the control and experimental group environments and elements of this class/lab work were tested by oral exams given to both groups.

### *Figure 1*

**A sample *French in Action* Classroom/Lab Activity**
Topics for Lesson 38:

*Répondez à toutes les questions ci-dessous:*
*Exercices de vocabulaire. Ajoutez trois autres réponses à celles qui sont données comme exemples:*

1. *Qu'est-ce qu'on peut perdre? (ex., 3.000F, son temps, un pari, la tête, la guerre, un match de rugby, sa place de parking, son emploi, etc.)*
2. *Qu'est-ce qu'on peut préparer? (ex., un examen, un coup d'état, une révolution, un spectacle, la Mise en Œuvre, son devoir, son diner, etc.)*
3. *Qu'est-ce qu'on peut ouvrir? (ex., les oreilles, la fenêtre, un journal, une bouteille de muscadet, un magasin, la bouche [pour parler français], son livre, la porte, etc.)*

Questions de discussion:

4. *Que pensez-vous du cinéma noir et blanc?*
5. *Êtes-vous d'accord avec Mireille qui pense que le "vrai" cinéma est le muet?*
6. *Décrivez votre film favori.*
7. *Qu'est-ce que le "vrai" cinéma pour vous?*

The methodology used in teaching the short stories was as follows: The stories in *Le Petit Nicolas* were assigned to the students to read at home before coming to class. They were asked to prepare the study questions in anticipation of a discussion in class—either in the lab or in the regular classroom. The questions were both content-based and personal. An example follows based on the story *C'est Papa qui décide* (see Appendix 2 for the translation).

***Figure 2***

**Questions from Nicolas Story as a Communicative Classroom/Lab Activity**

Français 212 Discussion on *C'est Papa qui décide*

*Questions sur Nicolas:*

1. *Quels ennuis est-ce que les Blédurt ont eus en vacances l'année dernière?*
2. *Résumez les inconvénients de la villa que Papa veut louer dans le Midi.*
3. *Qu'est-ce qu'il y a d'intéressant à faire à Bains-les-Mers d'après Maman?*
4. *Pendant toute l'histoire Maman tricote un pullover. Pourquoi? Quelle est la signication de ce "pull-over"?*
5. *Est-ce que Maman est habile? Est-ce qu'elle attaque Papa de front? De qui profite-t-elle pour l'aider à convaincre Papa d'aller en Bretagne?*

*Questions personnelles:*

1. *Où êtes-vous allé(e) pendant les vacances de printemps? À la montagne? À la plage? Êtes-vous resté(e) à l'hôtel ou avez-vous loué une villa? Donnez une petite description de ce que vous avez fait pendant ces vacances.*
2. *Dites pourquoi vous avez choisi la plage, la montagne, Knoxville, Nashville, etc. pour vos vacances?*

## The Process

In the computer lab, students logged in at individual terminals and read the posted questions based on their homework preparation as shown above. They then responded to those questions and exchanged ideas with each other and the instructor for the entire class period. In the lab sessions early in the semester, student response, while enthusiastic, was limited to specific responses to specific questions. Student production became much more creative and expressive as the semester progressed and as the tasks demanded of them went from textbook questions to discussion questions about the *Le Petit Nicolas* stories. This fact would dismiss the Hawthorne effect as a negative element to the findings since the enthusiastic use of the medium was not related to initial contact with the software. On the contrary, students seemed to consider the software more as a tool for communication than as an exciting game as time went on.

Student messages quoted here are unedited and contain errors (including typos). The researcher hypothesizes that students made no more or fewer errors than in their oral interlanguage discourse. However, in the final study, the author will document the proportion or type of written errors carried over into the speech performance of the subjects. In this, as in previous studies of LAN communication, students were not required to include accents in their messages to avoid slowing down the rapid conversational nature of the exercise (Kelm 1992; Beauvois 1992a, 1992b; Kern 1995). The vocabulary questions for this section were based on exploration and travel themes in the textbook/video episode in which Mireille and Robert win the lottery and plan a discovery trip of France (lessons 50–52, FIA).

The first three questions of this activity were designed to practice the construction of verb + infinitive, the conditional, and the use of recent vocabulary. The translations follow the student entries.

1. *Qu'est-ce qu'on peut explorer?*

   What can one explore?

2. *Qu'est-ce que Mireille et Robert devraient faire/acheter [avec leur argent]?*

   What should Mireille and Robert do/buy [with their money]?

3. *Si Mireille et Robert venaient dans le Tennessee, qu'est-ce qu'il devraient faire/voir?*

   If Mireille and Robert were to come to Tennessee, what should they do/see?

The last question for this session was more personal.

4. *Où voudriez-vous aller en vacances?*

   Where would you like to go on vacation?

A sampling of typical responses to questions 1 through 4 follows (Initials are used in place of student names, and "Instr." indicates the instructor). The following messages are in the chronological order in which they appeared on each student's computer screen.

Question 1: *Qu'est-ce qu'on peut explorer?* What can one explore?

RT: *On peut explorer le Grand Canyon.*
One can explore the Grand Canyon.
AN: *On peut explorer les montagnes "Smokies".*
One can explore the Smoky Mountains.
ST: *On peut manger la nourriture dans la cafeteria!*
One can eat the food in the cafeteria!
LS: *On peut explorer les petits cafes a Amsterdam.*
One can explore the little cafés in Amsterdam.

EH: *On peut explorer sous le toit de la maison de sa grand-mere!*
One can explore under the roof of his/her grandmother's house.
PB: *Oui, EH, la cafeteria, on peut explorer!*
Yes, EH, one can explore the cafeteria!
BL: *On peut trouver dans la maison de ma grand-mere beaucoup de photos vieux et vetements anciens.*
One can find lots of old photos and old clothes in my grandmother's house.
JA: *Et, LS, on peut explorer les autres choses a Amsterdam!*
And, LS, one can explore other things in Amsterdam!
BB: *On peut explorer le jardin et la maison de Monet.*
One can explore Monet's garden and house.

Questions 2 and 3:

2. *Qu'est-ce que Mireille et Robert devraient faire/acheter [avec leur argent]?*
   What should Mireille and Robert do/buy [with their money]?
3. *Si Mireille et Robert venaient dans le Tennessee, qu'est-ce qu'il devraient faire/voir?*
   If Mireille and Robert were to come to Tennessee, what should they do/see?

Student responses as they appeared on all participants' monitors:

AN: *Ils devraient acheter un voiture.*
They should buy a car.
JT: *Mireille et Bob devraient acheter beaucoup de vetements nouveaux!*
Mireille and Bob should buy lots of new clothes!
BB: *Si Mireille et Robert venaient au Tennessee, ils iraient a Dollywood!*
If Mireille and Robert were to come to Tennessee, they would go to Dollywood!
ML: *Ils devraient envoyer Marie-Laure au pensionnat!*
They should send Marie-Laure to boarding school!
BL: *Non, BB, ils devraient visiter Graceland!*
They should visit Graceland!
JD: *Mireille et Bob mangeraient beaucoup de bonsbons!*
Mireille and Bob would eat a lot of candy!
AW: *BB, et BL, Ils devraient aller a Opryland!*
They should go to Opryland!

Question 4: *Où voudriez-vous aller en vacances?*
Where would you like to go on vacation?

Student responses as they appeared on all participants' monitors:

JA: *En Nice, je ferai du camping dans la montagne.*
In Nice, I will go camping in the mountain.

EH: *Peut-etre je voyage a allemagne et visite une ou deux "tavernes". . .*
Perhaps I [will] travel to Germany and visit one or two taverns.

MM: *Je veux voyager a velo en Europe, et je veux faire du camping un peu mais j'adore les grands hotels aussi!*
I want to travel on a bike in Europe, and I want to camp a little but I adore big hotels, too!

YF: *Je vais aller du camping pour Spring Break avec dix amis a Pisgah Forest.*
I am going camping over spring break with ten friends in the Pisgah Forest.

HS: *Je prepare un voyage a Australia en bateau et a pied. Je voudrais voir les animals et l'hommes de la region.*
I am preparing a trip to Australia by boat and on foot. I would like to see the animals and people of the area.

LC: *Je voudrais aller a la Cote d'Ivoire.*
I'd like to go to the Côte d'Ivoire.

RS: *Je voudrais aller au Allemand pour voir le compagne.*
I would like to go to Germany to see the countryside.

In addition to these rather factual responses, there were the attempts at humor based on the story line in which the hero and heroine shop at the Paris department store *La Samaritaine*, a rather impressive 19th-century building:

> *CC: Pour aller en France, je vais voyager en avion parce que c'est la plus vite. Je pense que je resterai dans la Samaritaine a Paris parce que c'est tres elegante. Je vais emporter tout mes vetements, et mes chaussures, et beaucoup d'argent parce que la Samaritaine est tres chere!!*
>
> To go to France, I am going to travel by plane because it is faster. I think that I'll stay in the Samaritaine in Paris because it is very elegant. I am going to take all my clothes and my shoes, and lots of money because the Samaritaine is very expensive!!

After a few straightforward messages, the exchanges became more personal in nature:

Instr. (to student): *LC, Cote d'Ivoire. Oui. Que ferais-tu la-bas?*
LC, the Cote d'Ivoire. Yes. What will you do over there?

PR. (to Instr.): *Quest que tu pense a les Bahamas? Est-ce que tu va ici?*
What do you think of the Bahamas? Are you going here?

TC: *Je prepare un voyage en France. J'vais voyager en avion et en train. J'vais faire visiter la Tour Eiffel et les petites cafes des intellectuels.*

I am preparing a trip to France. I am going to travel by plane and by train. I am going to visit the Eiffel Tower and the little cafés for intellectuals.

CC (to Instr.): *Monsieur, je voudrais aller a Caen encore parce que je connais beaucoup de gens la.*

Sir, I would like to go to Caen again because I know lots of people there.

Instr. (to student): *TC, Vous aimez les cafes intellectuels?*

TC, you like intellectual cafés?

PR: *pas de... activite... a mon cerveux... je suis ... morte!!!*

No activity . . . in my brain . . . I am . . . dead!!!

Instr. (to student): *PR, j'aimerais bien aller aux Bahamas, mais on ne me paie pas assez comme instructeur de francais!*

PR, I would like to go to the Bahamas, but they don't pay me enough as a French teacher!

JW: *Je pense que je vais aller a Paris en avion. Quand j'arriverai la, je vais aller a toutes les villes en Europe en train. Je descenderai dans des palaces. Je vais emporter mon mari et mes enfants.*

I think that I am going to go to Paris by plane. When I arrive there, I am going to all the cities in Europe by train. I will stay in palaces. I am going to take my husband and children along.

Instr.: *Qui aime beaucoup faire du camping?*

Who likes to go camping?

AH: *Je deteste le camping.*

I hate camping.

YF : *AH, Pourquoi tu detest du camping?*

(student to student) AH, why do you hate camping?

This excerpt demonstrates the highly conversational, lighthearted aspect of real time synchronous LAN discourse. The advantages immediately apparent are that students are using the vocabulary and structures of the lesson to describe their own desires. Exchanges take place among students as well as with the instructor. The fact that there is no turn taking (i.e., waiting for others to respond to a given question) allows students to communicate at will and gives the instructor a wide spectrum of ideas to explore with them (*la Côte d'Ivoire*, Caen, *la Samaritaine, les cafés "intellectuels"*). Unanswered questions could be taken up at a later time, during a follow-up class session. In this particular study, however, there was no follow-up session to the lab exercise.

As the semester progressed and students began the short story reader, their *InterChange* sessions became very interactive in nature. They seemed to prefer the reader over the textbook. Their messages showed a more positive response to the exercises in that there were: fewer off-topic comments; more humorous and more self-revealing messages; more questions, clarifications, and comments made to one another and to their instructor. Future studies into this type of open-ended computer-mediated activity should examine the effectiveness of certain tasks over others in such a student-centered environment.

The *Le Petit Nicolas* story, *Marie-Edwidge* (Goscinny and Sempé 1961, pp. 88–99), is about the reaction of Nicolas and his friends (all boys) to the presence of a little girl whom the mother has invited to a party. Students were asked first to describe the situation. Some of their responses follow. The reader will notice that no corrections have been made to the transcript. Once again, had there been a follow-up session to this practice, these errors could have been addressed.

Student responses are to the instructor's request that they comment on the text as the messages appeared on all participants' monitors:

MB: *... la mere de Nicholas a servi le chocolat et les parts de gateau.*
Nicolas' mother served hot chocolate and pieces of cake.

JW: *Alceste tout de suite alle dans la salle a manger parce qu'il veut voir ce qu'il y avait pour le gouter.*
Alceste immediately went to the dining room because he wants to see what there was for snacktime.

HS: *Les copains de Nicolas n'aimaient pas Marie-Edwige parce qu'elle est une fille et ils ne jouent pas avec les filles.*
Nicolas' friends didn't like Marie-Edwige because she is a girl and they don't play with girls.

MB: *Geoffroy s'est mis a manger son gateau a toute vitesse, parc qu'il est jealoux d'Alceste. Marie Edwige aime Alceste, puis Geoffroy est dans mauvais humor.*
Geoffroy began eating his cake with great speed, because he is jealous of Alceste. Marie-Edwidge likes Alcest, then Geoffroy is in a bad mood.

RS: *Raoul voulait jouer au football parce que il est grande.*
Raoul wanted to play football because he is big.

JW: *Marie-Edwige a besoin beaucoup de temps pour manger son gateau parce qu'elle mange par petits bouts et elle aussi offre les petits morceaux a sa poupee.*

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Marie-Edwidge takes lots of time eating her cake because she is eating tiny bites and she also gives little bits to her doll.

AH: *C'etait bizarre que Alceste offre les morceaux de brioche a la poupee.*

It was strange that Alceste gave some bits of his brioche to the doll.

L S: *Raoul voulait jouer au football pour montrer au marie-edwige, et elle admirait. Mark: merci pour mon correction!*

Raoul wanted to play football to show Marie-Edwidge and she admired him. Mark: Thanks for my correction!

JW: *Geoffroy s'est mis a manger son gateau a toute vitesse parce qu'il veut manger plus vite qu'Alceste.*

Geoffroy began to eat his cake with great speed because he wants to eat faster than Alceste.

HS: *Alceste offrait des bouts de brioche a la poupee. Il est tres bizarre.*

Alceste gave bits of the brioche to the doll. He is very strange.

Instr: *C'est surtout un comportement bizarre parce que normalement Alceste n'offre a manger a personne, meme ses copains!*

It is especially strange behavior because normally Alceste doesn't share food with anybody, even his buddies!

LS: *je ne sais pas qui etait bizarre dans le comportement*

I don't know what was strange about that behavior

HS: *qu'est-ce que c'est, un comportement???????*

What does "behavior" mean???????

Instr: *Passons aux questions personelles. A l'age de Nicolas, que faisiez-vous avec vos copains?*

Let's go on to some personal questions. When you were Nicolas' age, what did you do with your buddies?

MB: *Quand j'avais l'age de Nicholas, Je faisais beacoups de partie pour mes copains.*

When I was Nicolas' age, I had lots of parties for my friends.

Instr: *HS, comportement = behavior*

HS, comportment means behavior.

M B: (to instr.) *Que faisiez-vous pour impressioner vos copains, quand vous etiez petite?*

What did you do to impress your buddies, when you were little?

RS: *J'etais jouer au sport pour impressioner mes amis.*

I used to play sports to impress my friends.

TJS: *Tout le monde, Aviez-vous un ami imaginaire?*

Everybody, did you have an imaginary friend?

Instr: *Pour impressioner mes copains? Je crois que j'essayais de faire des choses "courageuses," comme grimper aux arbres tres hautes ou sauter dans l'eau des hauteurs qui entourait la piscine ou le lac.*

To impress my buddies? I think that I tried to do "brave" things, like climb very high in trees or jump into the water from great heights around the pool or lake.

JL: *Quand j'ai cinq ans, j'ai joue avec des petits garcons et des petites filles.*
When I was five years old, I played with little boys and girls.

MB: *J'avait un chien et un chat, mais un ami imaginaire, non, je ne l'ai jamais.*
I had a dog and a cat, but an imaginary friend, no, I never had one.

LS: *J'avais un garcon imaginaire qui appele "philip le philipino"*
I had an imaginary boy who was called "Phillip, the Philipino"

Instr: *Qui d'autre avait un(e) ami(e) imaginaire quand ils etaient petits?*
Who else had an imaginary friend when they were small?

JL: *Quand j'AVAIS cinq ans . . . !*

TJ: When I WAS five years old . . . !

JW: *J'avais un petit chien imaginaire dans ma poche.*
I had a little imaginary dog in my pocket.

LS: *"Philip le philipino" habite dans ma placard et ses enfants habitent dans mes "shoes".*
Phillip the Philipino lives in my closet and his children live in my shoes.

Instr:. *MB: J'avais (vous aviez), etc.*
MB: I had, you had, etc. [direct correction of verb forms]

T.J. S: *Je n'avais pas un ami imaginaire.*
I did not have an imaginary friend.

TS: *Je n'etait pas "imaginative" avoir un ami imaginaire.*
I was not imaginative [enough] to have an imaginary friend.

The corrections made by the instructor in this case were directed to an individual student and simply stated. To explain vocabulary:

1. "HS, *comportement* = behavior."
2. To correct a verbal expression he was focusing on, but not all incorrect use of verbs. In this case, he was working on correct use of the expression "*avoir + age*" in the imperfect tense: "*TJ: Quand j'AVAIS l'age de Nicolas...! L'age avec avoir.*" "*Terry: J'avais (vous aviez).*"

The quantity, candidness, and conversational quality of LAN discourse has been described in previous research (Beauvois 1994, 1996a, 1996b; Bump 1990; Kelm 1992; Kern 1995; Peterson 1989). These excerpts from the transcripts of French 212 demonstrate once again the positive elements documented previously, such as freedom of expression, full class participation, openness and honesty of messages, etc. Although these aspects of LAN discourse are interesting to explore, as they are not the focus of this article, further discussion of them will not be included here.

## Findings and Discussion

In February, mid-March, and May, all students in both the control and experimental groups took oral exams on the material studied in the lessons. These exams were held during the instructors' office hours and lasted approximately ten minutes per student per exam. The exams included questions about the stories and personal questions taken from the oral activities that the students had been doing in class (M/O and M/Q from FIA, and questions at the end of each chapter in *Le Petit Nicolas*). Grading was based on a 20-point system: five points for pronunciation, five points for correct grammar usage, five points for correct vocabulary usage, and five points for content (accuracy of response). The grading was subjectively based on the instructor's own evaluation of the student's performance in these areas. However, as the same instructors taught students in both groups, it is assumed for the pilot study that the rating was not done to favor any one student over another. In the final study, tests of inter-rater and intra-rater reliability will be calculated.

At the end of the semester, a t-test was done on the final averages of the three oral-exam scores of the experimental and the control groups. A significant difference in achievement was found in the group using the LAN (see Table 1 below for a breakdown of the data):

***Table 1***

**Results of t-Test on Average of Three Oral Exam Scores**

| Group | N | Mean | StdDev | t | Prob |
|---|---|---|---|---|---|
| Control | 46 | 84.15 | 12.63 | 2.20 | 0.03 |
| LAN | 37 | 89.19 | 8.15 | | |

**Key:**

Control Group = 2 sections with only oral in-class discussion. A total number of 46 students.

IC Group = 2 sections of *InterChange* (the *Daedalus* LAN communication module) discussion in the lab. A total of 37 students.

The data show a significant difference at the 0.03 level in the scores of the experimental group over the control group. The finding of an overall superiority of the oral expression in the exams of the experimental group surprised the researchers and teachers, and gave rise to some speculation as to its cause. A discussion of contributing elements follows.

### *Linguistic Elements*

The intense practice afforded by the LAN exercises is certainly an important contributing element to the high oral test scores of the students in the experimental group. The fact that students can and do participate at will, without having to wait on others for a turn at "speaking," allows them to share all their ideas. The low-stress atmosphere encourages experimentation with the language and being able to write something in the second language is less inhibiting to most than having to say it. Reading vast amounts of input from classmates and from the instructor also contributes to more contact with the target language than is possible in the traditional classroom. In previous research using LAN exercises, students report that they perceive progress in all four skills of language learning: reading, writing, comprehension, and speaking (Beauvois and Elledge 1996). More input, or more intake (Lee and Van Patten 1994), leads to more proficiency in the target language.

### *Technological Elements*

The physical aspects of the technology cannot be discounted in a discussion of the features of this exercise. The compelling character of the computer environment plays a part in the activity: the computer monitor itself (today's students are accustomed to looking at screens), the rapidity of the transfer of information, and the commanding nature of the messages flashing on the screen—all demand attention. Students accustomed to other computer applications, such as games, generally have a positive attitude toward technology. Even among students not very familiar with the use of computers, there is still a certain interest in experimenting with this innovative environment. It is probable, however, that this powerful initial "novel effect" might disappear after a few sessions. As mentioned above, students seemed less amused by the technology as time went on and more adept at using the program as a tool toward expressing their ideas. This software is a generic package with no "bells and whistles" to capture student interest. It is the author's opinion that the Hawthorne effect had little influence on the experimental group's overall performance in this pilot study.

### *Social Elements*

This computer-mediated communicative environment fits the social constructivist view of language learning as a collaborative effort resulting in the construction of knowledge. L. Vygotsky's (1978) powerful image of "scaffolding," the creation of support systems among speakers to facilitate language learning, applies very well to this process. Students, usually with the aid of the instructor, build such support structures for one another as they exchange ideas, answer each other's questions, and negotiate for meaning in their study of texts.

Network technology, instead of isolating users, connects them affectively and intellectually. In addition, by including those students sometimes marginalized in the traditional classroom by their race, gender, a handicap, or their own timidity, the pool of scholarship is augmented—the entire discourse community is enhanced by the addition of each student's participation. The instructor as well as the other class members often "discover" a member of the class on-line—one who might be too shy to speak up in class (Beauvois 1993). As students become adept participants in this LAN communication activity, they see themselves as members of a community who share a common language. A sense of belonging that can only be beneficial to the language acquisition process is established (Smith 1988). All of the above reasons and perhaps others constitute some response to the "Why?" behind the finding that writing leads to increased skill in speaking. Only more research will enlighten us further. As a result of this pilot study, we can say that there seems to be a link between the use of real time, synchronous, networked communication and achievement in oral skills at the beginning-intermediate level of the study of French.

## Limitations

The limitations in this pilot study lie in the relatively small number of subjects (total = 83 students in four sections). Furthermore, the computer sections were limited to 20 students each throughout the semester, whereas the other sections were limited to 24 students. The smaller numbers in the LAN sections might have influenced student achievement. It is also true that as each class has its own character and atmosphere, two sections of a course are never absolutely identical in their classroom activities, even with the same teacher. In the final study, the researchers will study the rate and type of error made in the written and oral interlanguage to determine whether written errors are carried over into the speech performance of the subjects. In addition, the tapes of the oral exams will be used to determine inter-rater and intra-rater reliability. Furthermore, the research will calculate the results on each of the three exams as separate dependent variables to see if students made progress over the course of the three exams as a result of the treatment.

Nevertheless, given the rigorous effort to control for variables in this pilot study, the outcome can be considered interesting as an initial investigation of the practical use of LAN communication as an effective means of improving student oral expression in a second language.

## Future Research

Follow-up studies using larger populations and investigating achievement at different levels of language study would add to the data concerning the use of synchronous computer-mediated communication in language learning. Exploration of this new medium in the light of individual differences such as motivation, personality, learning styles, and so forth, would also provide important information to language professionals seeking to understand the language learning process. In addition, although only oral achievement was the focus of this study, the effects of so much on-line real time reading and writing practice on the acquisition of these skills should be measured in future studies.

## Conclusion

This article has described the effects of computer-mediated communication on oral acquisition of a second language. As a pilot study, it uses limited numbers of students and does not pretend to generalize to all second language learners or all second languages. More studies on the transfer from written electronic communication to oral skill development are needed to confirm the findings of this study. However, as language professionals explore the possibilities of effective uses of technology in language teaching and learning, the results of this study cannot be ignored and might encourage us to explore the possibilities of including this relatively simple communication technique in our language curriculum.

## Acknowledgments

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## Appendix 1

### Translation of Topics for Lesson 38

Answer all questions below:
Vocabulary exercises: Add three other responses to those already listed as examples.

1. What can one lose? (ex., 3,000F, one's time, a bet, your head, a war, a rugby game, one's parking place, a job, etc.
2. What can one prepare [for]? (ex., an exam, a government takeover, a revolution, a show, chapter questions, homework, one's dinner, etc.)
3. What can one open? (ex., your ears, the window, a newspaper, a bottle of Muscat, a shop, your mouth [to speak French], one's book, the door, etc.

Discussion questions:

4. What do you think about black and white movies?
5. Do you agree with Mireille that the only "real" cinema is silent movies?
6. Describe your favorite movie.
7. What is "real" cinema for you?

## Appendix 2

*Figure 2*

### Questions from Nicolas Story

French 212 Discussion on *C'est Papa qui décide*

Questions on *Le Petit Nicolas*:

1. What problems did the Bledurts have on vacation last year?
2. Summarize the drawbacks to the villa that Papa wants to rent in the South of France.
3. What is interesting to do at Bains-les-Mers according to Mama?
4. During the whole story Mama is knitting a sweater. Why? What is the significance of this sweater?
5. Is Mama clever? Does she attack Papa directly? What does she take advantage of to help convince Papa to go to Brittany?

### Personal questions:

1. Where did you go for Spring Break? To the mountains? To the beach? Did you stay in a hotel or did you rent a house/cabin? Give a short description of what you did during this vacation.
2. Tell why you chose to go to the beach or mountains, to Knoxville or Nashville, etc. for your vacation.

# Remote Access for Foreign or Second Language Acquisition: New Interpretations of Distance Learning

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## Introduction

Dynamic, interactive, multimedia communications have become an enormous growth area during the decade of the 90s. Prominent among such facilities are the Internet (a global network of networks, also popularly known as the "Information Superhighway") and the World Wide Web (a hypermedia-driven system that facilitates multimedia interaction on the Internet through a range of resources). Many other developments have taken place that are also part of the same movement toward fast, high-powered, and high quality computer-driven communications systems. We have reached a point now at which distance is no longer a barrier to any type of audio, visual, or digital communication.

The potential value of these developments to the field of education has neither been lost on theorists nor on practitioners. For example, Fischer (1996), in his CALICO '96 keynote address, stated:

> . . . for the last hundred years we have been chipping away at physical distance as a barrier to learning and have succeeded. We deliver at the speed of light. Accessing the information from our disks takes a few seconds longer, but in reality distance is the time it takes us to access information and display it. Distance is no longer the problem, or shall we say, the excuse (p. 10).

The new technological climate has given rise to a redefinition and expansion of the terms "distance learning" and "distance education," as well as the addition of new terms to the pedagogical lexicon such as "distributed learning" or "distributed information." Suddenly a wide range of opportunities for alternative types of curriculum structure and materials design are emerging. These vary from involving total remote-site access to on-line extensions to classroom instruction; others utilize Internet-based interpersonal communication while others involve teacher and learner access to various types of on-line information databases and materials. This chapter examines ways in which second or foreign language (L2) instruction may effectively interpret distance education in the light of current developments in computer telecommunications.

Prior to a discussion of how distance education and technology may relate to L2 instruction, some initial and somewhat general comments regarding currently accepted thought on L2 pedagogy will be made. These comments are intended to contextualize the new educational environment and to clarify a major pedagogical concern: that the role of any technology in L2 acquisition curricula should be one of subservience to objectives and other learner-specific variables.

## Overview of Current L2 Pedagogy

The field of L2 instruction has undergone considerable transformation since the 1970s. Prior to this period L2 instruction could be described as essentially teacher-centered and content-driven, in common with the rest of the curriculum: students acquired knowledge *about* the language. Transforming this knowledge into practical communications skills was beyond the scope of most learners, since it implied a need for opportunities for contextualized communication with native speakers. Such opportunities were facilitated neither inside nor outside the classroom. Since the 1970s, L2 curriculum design in many contexts has inverted these priorities by making the acquisition of practical communications skills the principal objective of course and materials design and knowledge about the form of the language a consequence of inductive as well as deductive experiences with the language. The rationale supporting such curriculum development has been that learner needs in a rapidly changing global society are pragmatic in nature rather than academic.

Present L2 materials and classroom pedagogy facilitate exposure to the language through various types of audiovisual, context-rich, authentic or pseudo-authentic input. They also provide interaction with this input through guided, message-oriented tasks. Although the relationship between explicit knowledge of grammar and communications skills is still poorly understood, most would agree that L2 pedagogy should also facilitate overt control over many of the formal features of the language being acquired. Swain's justification (see, for example, 1985) that this knowledge is required for output, rather than for comprehension of input, is a convincing argument.

These features of contemporary L2 instruction have led to the definition of a uniformly accepted—although less uniformly applied—proficiency curriculum and methodology (see, for example, Omaggio Hadley 1993). This curriculum and methodology is intimately linked to the notion of interaction. Interaction, which may be loosely defined as creative construction (production) and reconstruction (interpretation) of meaning (see Omaggio Hadley 1993, p.169), is at once the goal, the medium, and the content of L2 acquisition (precisely the features that distinguish this discipline from all others on the curriculum). The value of *any* technology to the L2 instructional process must be measured in terms of the extent to which it is successful in facilitating L2 interaction in the somewhat broad sense indicated above. This is equally true for classroom-based instruction, distance education, and learner-independent modes of L2 acquisition.

Computer technologies can play a crucial role in facilitating the objectives of L2 instruction in at least four ways. Whether the learner is located in the classroom, computer laboratory, home, office, or any other location for learning, computer technologies can facilitate L2 instruction by providing:

- diverse structure-focused activities with learner-specific evaluation and feedback;
- complex multimedia input to the learner;
- a variety of forms of dynamic monitored interaction with that input;
- diverse environments for interpersonal communication, both dynamic (synchronous) and delayed (asynchronous).

The discussion that follows on the relationship between L2 instruction and distance education technologies should be understood in terms of currently accepted objectives for L2 acquisition and currently accepted pedagogy for achievement of these objectives.

## A Resurgence of Interest in Distance Education

Developments in computer technologies and related industries over the past half-decade or so have begun to suggest implications for curriculum design, materials design, and instructional delivery of potentially far-reaching consequences. These implications are cross-curricular, cross-course levels, and cross-institutional in nature. They portend paradigmatic change in education in its widest sense. Educational literature, both on- and off-line, reflects this trend.

Interest in multimedia integration and development has now been superseded by the broader question of how such digital multimedia information can be made accessible and how it can be transmitted. Thus, interest has now recently turned to transmission and telecommunications technologies that enable rapid and high-quality, cross-platform access to information sources of various multimedia dimensions including dynamic, interactive sources.

Some of the developments taking place with significant implications for the way in which education is organized and conducted include: fiber-optic transmission technology, computerized audio-video communications (e.g., *CUSeeMe*), the Internet and related networked information services (e.g., Usenet, the Texas Education Network or TENet, the National Research and Education Network or NREN), browsers that facilitate access to networks (e.g., *Netscape, Mosaic, Explorer*), dynamic Internet communication (e.g., IRCs, WebChat, MOOs, MUSEs, MUDs,[1] and real time electronic mail or "talk"), and asynchronous forms of communication (e.g., electronic mail, listservs, and BBSs or bulletin board systems). Such developments are no more, and no less, than one step further in the direction toward a curriculum increasingly characterized by the use of a broad range of computer-driven technologies.

Interest in communications-based technologies for the world of education has become widespread. It is reflected in the nationwide move toward fiber-optic networks on many university campuses; it is seen in a recent partnership between the California Department of Education and numerous private sector companies (Sun MicroSystems, Apple, Xerox Parc, Oracle, Silicon Graphics, TCI, among many others) set up to provide all 12,000 schools in California with the technology to enable classroom links with the Internet. Numerous states have established partnerships between departments of education (DoEs) and private sector companies to create local and state-wide area networks to provide access to information and communications facilities. Organizations such as the Annenberg/CPB Project have invested considerable amounts of money in funding projects to create national networks for rethinking curriculum structure and course content in the light of recent developments in computer-driven communications technologies. Many universities and colleges of higher education now offer partial or total on-line courses that count as credit toward degrees; in fact, complete degrees can be obtained without even stepping inside the classroom (see, for example, Fischer's reference to the Western Governors' Association "virtual university" and the "virtual Diversity University in Arizona" 1996, pp. 8–9).

At the federal level, favorable treatment for education is envisaged on the emerging "Information Superhighway" (see U.S. Government 1993) and within the Telecommunications Reform Act of 1996 that redefines services provided by telephone and cable companies. A National Educational Technology Funding Corporation (NETFC) has been set up to provide assistance to state DoEs on issues of technological infusion in education. Indeed, national conferences are devoting complete meetings to the effects of communications technologies on education, reflecting the seriousness and interest with which education is taking the new technological climate.

High speed and high quality digital transmission and telecommunications technologies have recently focused educators' attention on a new catchphrase—"distance education." The computer classroom is no longer merely understood as facilitating learner interaction with digital tutorials, simulations, drills, games, and other modes of pedagogical software, but also communication with the outside world, with the community at large, and with a vast collection of digitally stored information. Thus, the computer classroom is now expanding its facilities to permit the following "distance" or "multisite" activities:

- links to various remote-networked and local-networked databases of information and applications;
- a connection to other participants in education, both nationally and internationally (including school administration, peers, teachers, content experts, and L2 informants) through electronic mail, the Web, and other communications facilities;
- real time interaction through computer-conferencing technologies;
- real time multisite or multi-classroom instruction through the use of audio, video, and digital interactive television systems;
- access to learning from home and other remote-based computer facilities;
- links for teachers to on-line pedagogical materials;

- dynamic interaction between teachers on-line;
- more formal types of communications links for teachers including in-service courses provided through fully interactive television.

These technologies offer the L2 teacher new ways of solving the major pedagogical problem—how to engage the learner in meaningful interaction in both controlled and spontaneous environments with peers and other contributors to communication. The incentive with such technologies lies in the fact that computer-generated environments for interaction are infinite, ever-changing, instantaneously available, authentic, and, perhaps most significantly, allow for the learner to engage in interaction without the usual types of pressure and embarrassment inherent in face-to-face classroom communication. One important proviso—as with the use of any authentic materials in language learning—is that they all require judicious selection and adaptation for the needs of specific groups of learners, and specific pedagogical and linguistic goals. A map, a menu, a two-minute video segment, or e–mail account located in Zaragoza is useless without a coherent goal to engage the learner.

At the broader curricular level, with such computer-driven activities and facilities, a radically different interpretation of the time and space of the classroom is emerging. Such a vision may suggest the merger of traditional education with distance education, the merger of the educational world with the commercial world, and of home-based learning with classroom-based learning, a trend that is already manifesting itself at various levels of education.

## Some Historical Background to Distance Education

Distance education has a reasonably lengthy history dating back to the creation of correspondence courses in Europe in the mid-1800s: "composition through the medium of the post" in Sweden; "shorthand instruction by post and phonograph" in England; and "foreign language courses by correspondence" in Germany are some of the cited examples in the literature (see, for example, Holmberg 1986). Such courses were a product of newly emerging technologies as well as changing social patterns across Europe. As newer technologies were developed, they were integrated into the means by which distance education could maintain links with its "distant" consumer. Thus, radio, television, telephone, audiotape, and videotape—among other technological advances—improved the efficiency and effectiveness with which materials could be delivered to the distant learner, and to some extent the means by which the relationship between learner and educator could be sustained when necessary.

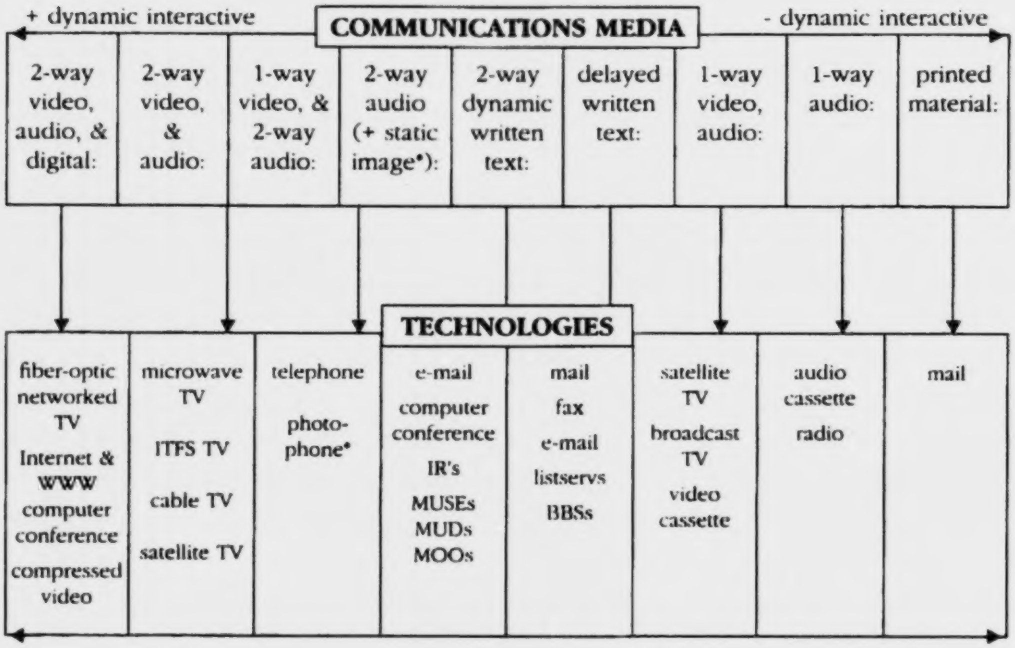
Distance education traditionally has catered to the marginal (i.e., nontraditional) needs of highly motivated and professionally-driven part-time, employed, adult, or extra-mural learners. These students were viewed not as an educational community that gathered to engage in learning-promoting tasks, but rather as a set of isolated individuals working independently of each other and largely independent of the teacher. The teacher's role was seen as curriculum generator, supplier of materials, and evaluator, with very little influence on the learning process itself.

With early developments in television and communications technologies, distance education became more sophisticated while traditional education was able to incorporate some of the features of distance education into its curriculum structure. In some instances traditional education was able to broaden its scope to enable traditional learners to receive down-linked materials in class via satellite, cable, or microwave television distribution. These services were extended to facilitate "multisite" instruction. Classrooms within an educational district could be linked by telecommunications technologies for multi-classroom and single teacher instruction. Frequently such multisite links were two-way audio and one-way video, enabling the remote classrooms to see the teacher but for the teacher-site to receive no return video signal. In many cases distance education has involved the distribution of canned video materials to remote sites, or of noninteractive live television broadcast, with little or no interaction between instructor and learners. Opportunities for communication were either provided through interaction with a local-site facilitator who provided discussion of the canned video or television broadcast class, or through an occasional telephone link with the instructor. Such noninteractive and semi-interactive models of distance education as adjuncts to traditional education are still very commonly found in this country.

A breakdown of technologies typically used in distance education, either independently or in combination with each other, is presented in Figure 1. These technologies are organized on an interactive to non-interactive continuum. The continuum indicates how technologies in education have more recently moved toward providing dynamic interactive facilities. This attribute is of particular appeal to contemporary educational theory that recognizes the importance of interaction and collaboration in learning. It is of particular relevance to the field of foreign or second language (L2) acquisition where interaction in the proficiency curriculum is clearly a major component of learner behavior.

**Figure 1**

**Technologies Used in Distance Education (Fast, 1995)**


+ dynamic interactive
COMMUNICATIONS MEDIA
- dynamic interactive
2-way video, audio, & digital:
2-way video, & audio:
1-way video, & 2-way audio:
2-way audio (+ static image*):
2-way dynamic written text:
delayed written text:
1-way video, audio:
1-way audio:
printed material:
TECHNOLOGIES
fiber-optic networked TV
Internet & WWW
computer conference
compressed video
microwave TV
ITFS TV
cable TV
satellite TV
telephone
photo-phone*
e-mail
computer conference
IR's
MUSEs
MUDs
MOOs
mail
fax
e-mail
listservs
BBSs
satellite TV
broadcast TV
video cassette
audio cassette
radio
mail

Technological developments in the past five years have provided the greatest impetus to distance education. With computer-driven communications technologies such as the Internet and the World Wide Web, multimedia browsers that facilitate cross-platform access to networks, and high speed and high quality transmission media such as fiber-optics, distance education is now beginning to be seen as an integral component of traditional education. The educational community is no longer being viewed as confined to the four walls of the classroom but can embrace learners from many different environments and learning contexts, as well as connect the classroom to the community. Modern technologies enable learners to:

- reach out to the community beyond the classroom;
- create links to the commercial world;
- receive the outside world into the classroom and interact with it dynamically;
- communicate with the extended classroom and its participants at any time;

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- expand the boundaries of education and learning to the home and other remote sites;
- become independent of the teacher and the classroom for some learning tasks while at the same time maintaining contact with them;
- develop a greater sense of responsibility for the process of learning;
- construct knowledge creatively from the perspective of personal need;
- develop skills of crucial relevance to the present-day employment market.

Predominant in recent educational literature across the curriculum is a sense that computer-driven communications technology is having a significant impact on the way we deliver education and on the way we design curricula. Scott's claims almost a decade ago (1988) seem to represent a fairly accurate picture of what is rapidly becoming reality:

> With the advance of technology and the increasing need to serve lifelong learning requirements, all schools will at some point have a distance learning capability to deliver instruction to remote locations. The remote locations may be as nearby as student homes, or across provinces, or they may be around the world to support curriculum in a Third World Country (see: http://www.lucent.com/cedl/dlschols.html).

## Distance Education and Foreign/Second Language Instruction

Many models of distance education applied to the field of foreign or second language instruction exist. Satellite, microwave, radiowave, and cable broadcast, as well as distributed canned video (all used independently or in combination with telephone, facsimile, photophone, and other technologies) have been used to reach the distant learner or to access supplementary, distant sources of information, and are documented in the L2 literature (see, for example, Johnson and Iten 1984; Kataoka 1986; Eddy 1989; George 1989; Wohlert 1989; Gallego 1992; Perrin 1992; Yi and Majima 1993).

These technologies have all helped to satisfy some educational needs of under-served populations or have been used to increase learners' dynamic exposure to native speakers of the L2 and their culture. They have, however, suffered from a number of problems that have guaranteed their limited pedagogical scope.

In cases of single site instruction with classroom links to the outside world (e.g., through telephone or satellite television), high costs and sporadic interaction render such links of relatively limited value. In cases of multisite instruction, many of the telecommunications systems do not provide complete two-way audio and video communication. They therefore inhibit immediate feedback and other interactive strategies, which are so crucial for effective second or foreign language acquisition. Indeed, some systems provide no interactive facilities at all for the learner. As a result, the conditions for L2 acquisition of the remote-site learners tend to be considerably inferior to those of the origination-site learners. Some systems involve teachers in a television studio presentation of instruction, thereby inhibiting spontaneous interaction and learner initiated discourse. Other systems involve engineer control of audio-visual hardware rather than teacher control. This imposes serious limitations on what the teacher is capable of doing minute by minute with the students at all participating sites, on the ability of the teacher to generate instruction through monitored, learner-centered approaches.

Such noninteractive or semi-interactive forms of distance learning run the risk of suggesting teacher-centered methodologies for L2 instruction. Clearly, the progress that has been made at the pedagogical level within our field in the last 20 or so years—the result of which is a coherent and theoretically supported proficiency curriculum and methodology—cannot be placed in jeopardy through the application of irrelevant, marginally useful, or poorly exploited technologies.

However, with the more recent developments in computer-driven interactive technologies described in this article, the panorama for L2 instruction is beginning to reshape itself in ways that suggest a more effective exploitation and integration of technology (see, for example, Armstrong and Yetter-Vassot 1994; Cononelos and Oliva 1993 and 1994; Erhmann 1995; Kelm 1992; Lunde 1990; Oliva and Pollastrini 1995; Sanaoui and Lapkin 1992; Warschauer 1995). Such optimism derives from the potential of technology for facilitating a broad range of contextualized forms of interaction.

Earlier computer-driven technologies highlighted mechanical practice mainly at the word and sentence level, and therefore tended to be methodologically out-of-date. These technologies also confined the learner to the instructional materials, in the same way that print-based materials typically do. They inhibited interaction rather than promoted it. At a later stage of development, computer technologies allowed the L2 profession to see how the world of the foreign language could be made a multimedia experience delivered to the classroom or laboratory through laser and CD-ROM.

Interaction with such materials could be made somewhat dynamic through interactive video technologies. Techniques for feedback and access to various types of disk-stored databases could be applied permitting the learner to be independent of the instructor for some tasks, thus allowing the instructor to focus on more specialized activities in class.

Such technologies have recently been superseded by computer-driven transmission and telecommunications technologies that aid the development of materials and facilities which distinguish themselves from earlier products mainly through offering elaborate contexts—virtual realities in many cases—for language practice. These resources promote links and interaction with reality, with the outside world, with the dynamic world of the L2 in ways that are qualitatively different from resources made available with earlier technologies. Some of these possibilities are:

- *Access to sources of on-line multimedia information and materials*
  Such materials and information may be located either on a local-network server, remote-network server, or on the Internet; they may be made available by educational publishing companies, by the educational institution itself, or by any contributor to the information databases on the Internet. Materials may be purposely designed for L2 instruction, or may be re-purposed authentic materials. Their pedagogical effect is to broaden opportunities for learning in terms of time, space, and variety. On-line resources may include integrated-course or specific-skills material; image and text-based dictionary databases; grammatical databases; structure-focused practice materials; text, image, or video-based cultural information; placement and course-linked tests; teacher materials designed for assistance in class preparation; or tracking devices to monitor performance and usage of on-line materials.
- *On-line synchronous and asynchronous communications*
  On-line communications facilities allow the learner to develop communication skills in the L2. They provide the learner with an opportunity to maintain connections with instructors, tutors, peer learners, and nationally or internationally located native speakers outside the classroom. (See the MUSE or multiuser simulation environment, *Un meurtre à Cinet/Un misterio en Toluca*, created by Oliver and Nelson at the California State University for an example of an adventure environment providing opportunities for synchronous and asynchronous on-line L2 communication.) Synchronous communications

may approximate some of the skills required of spontaneous oral interaction, while asynchronous communications may provide learners with more time to reflect upon how discourse needs to be structured. Both types allow the learner to communicate in a non-stressful environment. On-line synchronous and asynchronous communications may include: conventional e–mail, access to listservs and bulletin boards, dynamic computer-to-computer "chat"; and dynamic computer-to-computer video conferencing.

- *Virtual tours and field trips on the Internet*
  On-line virtual tours and field trips allow learners to investigate the language and culture of L2 regions of interest. Many sources exist for virtual travel enhanced by text, graphic, and video information. Access can also be made to many L2 newspapers and magazines, as well as live radio programming in the L2 (see, for example, the Spanish radio channel "Onda Cero" available at http://ondacero.adam.es/horario.htm).
- *Multisite instruction through two-way audio, video, and digital interactive television*
  Such interactive technology, optimally fiber-optic delivered, permits instruction from a teacher-site to any number of linked remote-sites. Multimedia interactivity from site to site facilitates an effective replication of the single classroom within the distance learning mode, with possibilities for dynamic, multisite foreign language instruction. Consideration of the accepted proficiency-based objectives of L2 acquisition would not appear to be compromised by the technological environment (see Fast 1995 and Simonson 1994).

While such a wealth of materials and resources for language practice may appeal to the interests of many teachers, there are a few negative implications of intensive involvement of technology in L2 instruction. First, the ability to exploit such resources and facilities is predicated upon the availability of an expensive range of hardware and software, for teacher and student use, within the classroom, laboratory, and home. In some educational contexts this may not be a serious problem; for many, however, it is the essence of a dilemma. Technology has, inadvertently, created a greater chasm between the haves and the have-nots. Second, technological phobia, naïvété, and illiteracy on the part of teachers and learners are still rampant. Investment in technology entails investment in training and in the long-term monitoring and upgrading of technological facilities. Due to their greater complexity, this is particularly true where distance technologies are concerned. Finally, constant regard for pedagogical issues is crucial in an environment where the superficial attraction of computer gimmicks may predominate. Browsing the Web does not constitute a successful methodology for L2 acquisition, unless, of course, it is part of a task designed with specific pedagogical and linguistic objectives. A curriculum for the learning of Russian driven only by web-based materials is likely to be as ineffective as a "Teach Yourself Russian in Six Months" primer.

## Four Models of L2 Distance Education Applicable to the College Context

The technological infrastructure required by a college L2 program to take advantage of the wide range of remote access or distance learning facilities described above is clearly not trivial. Few institutions can probably at present boast of the availability of a complex high speed and high quality system for L2 courses which facilitates access from various remote locations to local server-based materials, Internet-based facilities, as well as fully interactive multisite instruction. This situation is, however, changing rapidly as many university and college campuses establish campus-wide, fiber-optic backbones with the potential for high speed and high quality computer-driven telecommunications services accessible from many points both on and off campus.

Clearly, for a foreign or second language program to effectively integrate many of these distance learning features, accessibility to resources from a variety of locations including classrooms, laboratories, offices, dormitories, and private homes is of crucial concern. Careful consideration has to be given to the technological facilities available on a college campus before remote access resources are contemplated within a curriculum. A networked computer laboratory with Internet access may only provide a solution for a limited number of learners, or for small L2 programs. Programs for popular languages at larger institutions with enrollments numbering several hundreds and even thousands of students will clearly require a more sophisticated range of technological support systems including a combination of laboratory, dormitory, and home-based access to resources.

Specific contextual features are important in determining the types of remote access facilities required by an L2 program. These features include length of the programs offered, the number of classroom contact hours provided per course, the pedagogical objectives, or the composition of the student body enrolling in such courses, among other local characteristics. For example, shorter language programs, either in terms of numbers of semesters (four or fewer), or in terms of classroom contact hours per week (three hours per week or fewer), may effectively be augmented through the integration of remote access facilities. This structure would allow reasonable objectives (for example, an intermediate to intermediate high level on the ACTFL proficiency scale) to be achieved over limited amounts of time (for example, over four semesters from complete beginner's level). Class time can then be spent productively on activities that require the participation of the instructor. Remote access to on-line materials may provide the learner with additional varied types of multimedia exposure to the world of the L2 and opportunities for practice with the language.

Instructors may remember that the acquisition of a 2+ or advanced-high level of proficiency on the ACTFL scale (see the *ACTFL Proficiency Guidelines* 1986) of a common European language by an average ability learner is likely to take approximately 720 classroom contact hours[2] (see Liskin-Gasparro 1982; Omaggio Hadley 1993, p. 28). Some 240 classroom contact hours are suggested as necessary for the achievement of a 1+ or intermediate-high level of proficiency (a level typified by the ability to maintain *simple* face-to-face conversation). Many college undergraduate courses may typically set an advanced level of proficiency as their goal for the acquisition of a common European language (i.e., a level of proficiency which, to greatly simplify matters, embraces the ability to produce coherently structured discourse beyond the discrete sentence level in many informal and some formal settings). Such a goal may typically be required in courses that range from only 180 hours of classroom contact time (four semesters of 45 hours) to 300 hours of classroom contact time (four semesters of 75 hours). Clearly, such classroom contact time would appear to fall considerably short of recommended instruction times. Integration of a range of computer-driven remote access resources for L2 acquisition may provide a solution for contact time in the target language.

L2 courses with more frequent classroom contact hours and therefore increased opportunities for achieving objectives through classroom learning, alternatively, may exploit remote access facilities from within the classroom. This contact may serve as a means by which varied input may be supplied to the classroom, and by which the world of the L2 and its culture may be brought into the classroom. Other college situations may suggest that L2 learning resources be shared between geographically remote campuses or schools, thus necessitating multisite instructional facilities. Yet other programs with adult learners forming a substantial component of the student enrollment may set up fully autonomous distance learning, requiring a wide range of pedagogical experiences delivered by efficient and easily accessible technologies.

The following sections of this article examine four different models of distance education from a technological perspective. Each is discussed in terms of the technological configuration required, and the range of facilities that would be made available of interest to L2 instruction. The four models are not intended as mutually exclusive systems; it is likely that all four models of distance learning would exploit much common technology. They do, however, represent somewhat distinct interpretations of distance learning.

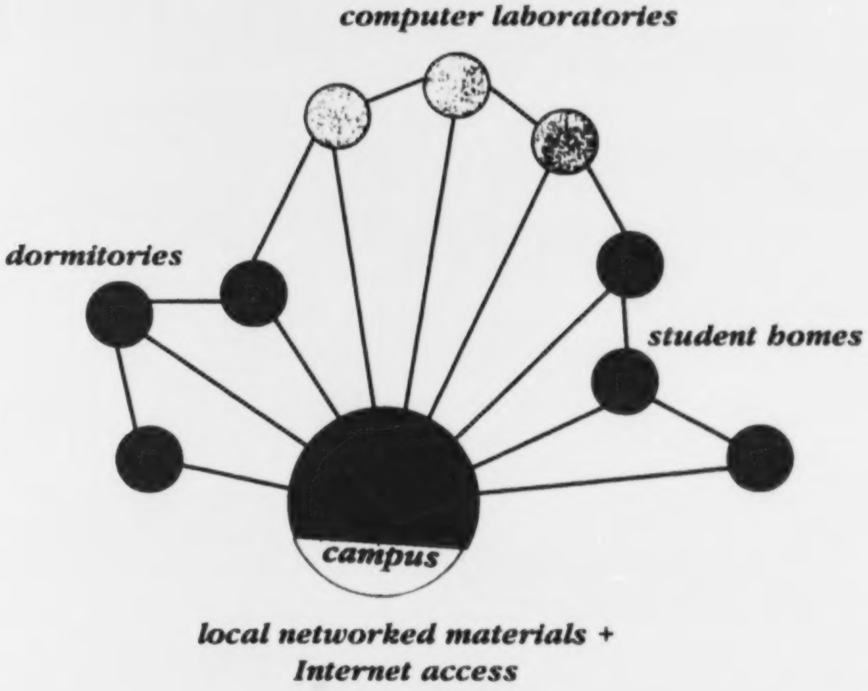
### *Model 1: Remote Access Used as a Supplement to Classroom Instruction*

The model shown in Figure 2 illustrates one interpretation of distance learning. In this model, a classroom-based curriculum is supported by an extensive out-of-classroom program of computer-driven facilities. This model may be of particular relevance to contexts in which classroom contact hours are somewhat limited (e.g., a four-semester L2 program consisting of three hours per week and totaling 180 classroom contact hours). Such limited classroom contact time may militate against the fulfillment of adequate objectives unless supplementary sources for learning are provided. In conventional programs print-based workbooks in conjunction with audio laboratory exercises typically provide such supplementary sources. These types of out-of-classroom activities are frequently difficult to monitor and assess and therefore may often be of dubious value to successful L2 acquisition. Nevertheless, they may provide adequate practice for highly motivated learners who are capable of applying a responsible approach to unmonitored individual work of this type. However, for most learners conventional workbook activities are unlikely to be engaging, and may appear to have little relevance to the stated goals of a course.

A possibly more effective and more varied alternative to conventional print-based workbooks with audio laboratory exercises may be offered by remote access facilities as illustrated in Figure 2. Learners are provided with access to a range of resources from various remote locations on and off campus, including modem links from home, dial-up facilities provided from residence halls, or direct access to networks in computer laboratories.

*Figure 2*

**Model 1: Remote Access Used as Supplement to Classroom Instruction**



Interactive multimedia resources provided on a local server or on the Internet may include the following: electronic workbook materials with user-specific evaluation and feedback and bookmarking facilities for organization of learning; other course-specific supplementary materials; various types of support databases including dictionaries and grammar reference materials; tests; authentic or pseudo-authentic audio and written text materials; various synchronous and asynchronous interpersonal communications facilities linking learners with peers, tutors, instructors, anonymous "chat" participants and listserv or bulletin board contributors, and e–mail pen pals; and virtual tours and field trips conducted on the Internet. Instructors may be provided with detailed usage data for each student as well as results of evaluated activities carried out on-line.

The wide range of controlled and open-ended resources available in this type of technologically supported environment suggests that an effective and

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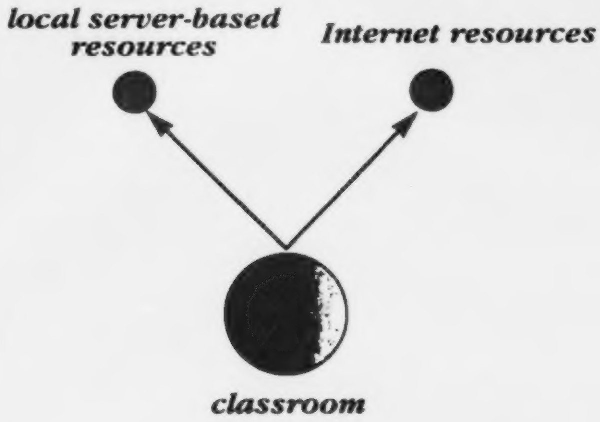
motivating extra-classroom program can be offered as a supplement to a classroom-based curriculum. This may potentially lead to the fulfillment of goals which in more traditional environments are probably beyond the scope of a non-technology supported program.

### *Model 2: Remote Access from Within the Classroom*

While remote access to on-line foreign language resources is likely to play a crucial role in supplementing classroom-based courses with a range of out-of-classroom facilities, some L2 programs may have characteristics that allow them to integrate remote access facilities within classroom activities (see model illustrated in Figure 3 below). This may be of particular interest to programs with relatively higher numbers of classroom contact hours, or with more modest end-of-course objectives. Classrooms would thus require state-of-the-art technology in order to deliver multimedia presentation and practice material of the types suggested above (i.e., to provide contextualized input within the classroom). The most efficient manner in which this can be done for multiple classrooms would appear to be through a local area network (LAN) with server-based (or Web-based) applications and resources including access to Internet facilities. Classrooms may be fitted with monitors or projection facilities and wall-located controls to operate all technologies while portable computers can be taken into the classroom and linked into the network. This type of set-up would obviate the need for "technology carts" wheeled into the classroom when required, a cumbersome, costly, and inefficient method of multimedia distribution. Alternatively, the multimedia, networked computer laboratory may be used for the provision of such computer-driven resources for classroom-based instruction, offering more extensive options for individual and small group work than may be possible with a single CPU set up in a conventional classroom.

**Figure 3**

**Model 2: Remote Access from Within the Classroom**



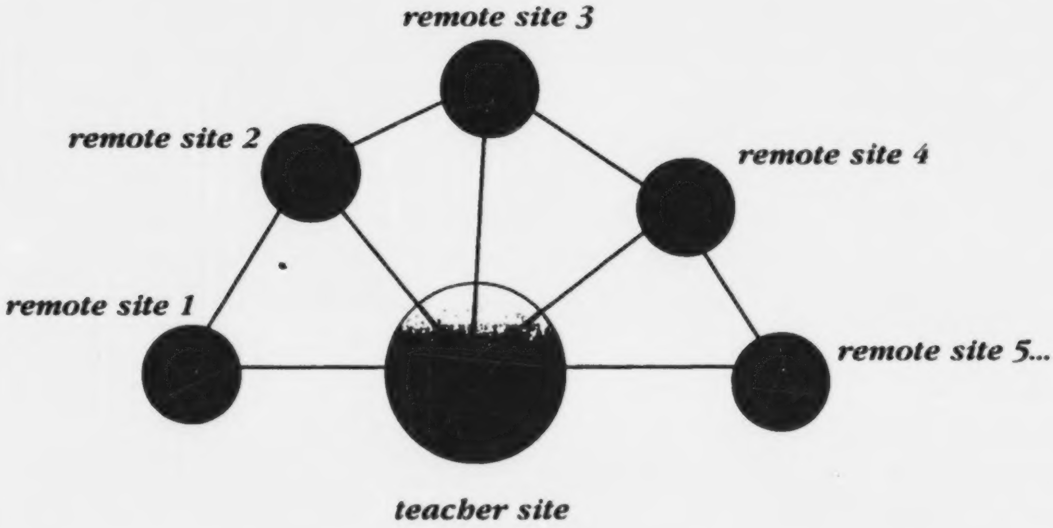
Use of computer-driven materials within the L2 classroom, whether necessitating remote access or not, has not been clearly defined. The ancillary status of a large proportion of these materials has highlighted their role as supplementary individual resources to be used outside the classroom. However, the wealth of Internet-based, authentic, multimedia input materials now available, together with an increasing amount of purpose-designed digital materials suggests that we should be exploring more ways in which technology can enhance what is carried out inside the classroom. Technology, as we have always known, is the means by which we are able to provide the learner with varied exposure to the world of the L2, and a means by which the learner can be less dependent on the teacher for models of the L2. Computer technologies, especially those that facilitate remote access, are our most effective source yet for achieving this.

### *Model 3: Regional Network for Multisite Instruction*

In the third distance learning or remote access configuration (see Figure 4), technology is designed for multisite instruction and communications. Such a configuration may be of interest to college contexts in which student enrollment might be obtained from a number of geographically remote sites. This may include L2 programs designed for complete full-time student enrollment or those that may involve participation from students located in business or commercial sites of various types. For example, an L2 program in Portuguese or Spanish for nursing and healthcare providers may be offered to full-time students enrolled in relevant courses together with practicing healthcare providers located in hospitals. A course in Japanese for business and administration may pool its student enrollment from campus-located students as well as part-time students working in industry or commerce with access to a remote-located distance education classroom. Many L2 programs with a professional needs perspective to them, and currently being designed and offered under the broad umbrella of the "Languages Across the Curriculum" or content-based instruction movement, would appear to be particularly suited to multisite instruction.

***Figure 4***

**Model 3: Regional network for multisite instruction**



In a multisite configuration the teacher-site provides fully interactive audio, video, and digital communication with any number of connected remote sites. Instruction takes place as in any normal single classroom set-up, with interaction between all students and the instructor across all sites. For L2 instruction it is crucial that such technology provide faithful audio and video representations of authentic communication—possibly through the use of full motion video and full duplex audio. Compressed video (necessitating decompression before viewing) in foreign language instruction

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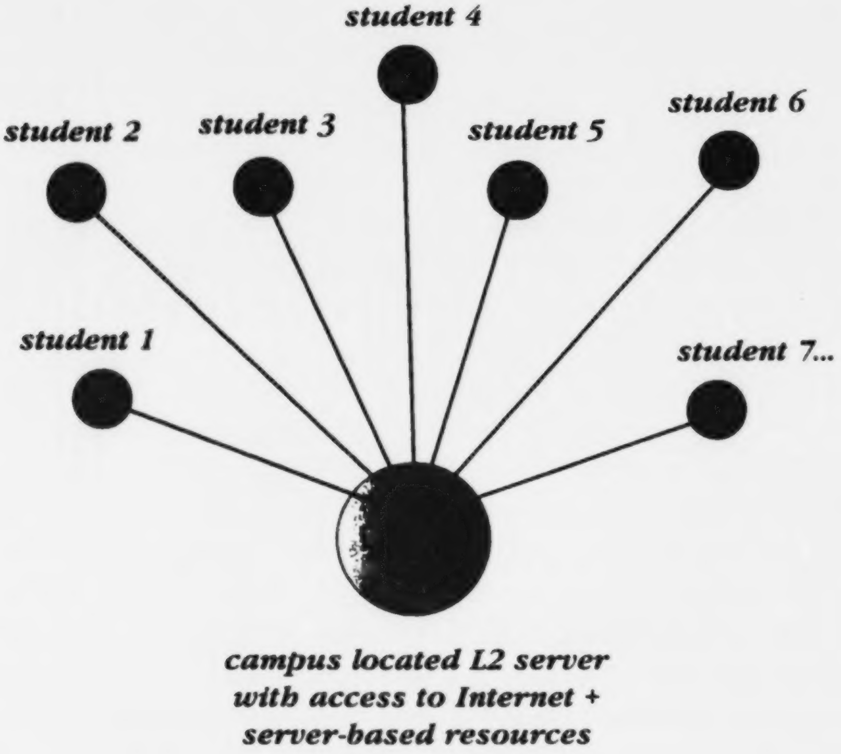
can lead to impaired input (e.g., time delays between audio and video signals as well as some inconsistent movement in the video signal), impaired conditions for interaction, and consequent loss of control by the instructor over a complex teaching environment. Ideally, all sites should be able to view all participating sites simultaneously. Digital materials need to be made available and controlled from the teacher site to all sites. Optimally, interaction with such digital materials may be made available from any site. Such a multisite network would typically be configured with fiber-optic delivery.

### *Model 4: Fully Autonomous Configuration with Remote-Located Individual Learners*

Model 4 (see Figure 5) approximates traditional definitions of "distance education"; that is, remote-located individuals working not as a learning community but independently of each other and of the educational institution. In this technological configuration, an L2 curriculum is designed to enable students to be largely independent of the conventional classroom and the supporting educational institution, while at the same time providing instantly accessible communications facilities with instructor, other remote-located learners, and a complete digital curriculum on-line. Such a curriculum implies more radical changes in curriculum structure and in the nature of materials. Since opportunities for interaction (the basis for L2 acquisition in the proficiency curriculum—a curriculum that *cannot* be sacrificed because of the technological environment) must form a substantial basis to curriculum and materials design, they must be integrated into on-line experiences in this model. Many of the communications facilities afforded by modern technology appear to offer interesting environments for the development and practice of interaction skills in the L2. This is largely an unresearched area in L2 instruction.

*Figure 5*

**Model 4: Fully Autonomous Configuration with Remote Located Individual Learners**


student 4
student 2
student 3
student 5
student 6
student 1
student 7...
campus located L2 server
with access to Internet +
server-based resources

The four models described above, which are not mutually exclusive, represent different ways in which distance education may be interpreted by the field of L2 instruction. The models suggest interesting expansions for the L2 education market within traditional education, as well as more realistic opportunities for achievement of course objectives. They also demonstrate ways in which different types of learners (on-campus and off-campus or full-time and part-time) may be effectively integrated into traditional education. Additionally, they show ways in which teachers can be more effectively linked to each other and to educational institutions for various pedagogical purposes.

## Conclusions and Implications

Throughout its history, the relationship of L2 instruction with technology has been capricious at best. Little success was reported in the literature on the integration of audio technologies through language laboratories within L2 pedagogy. Video technologies have possibly fared somewhat better, while computer technologies have as yet had little substantial or generalized impact on classroom activities and rather erratic effect on extra-classroom learning.

Cost of technology in the cash-stifled world of education has clearly had a negative impact. Falling prices for hardware and a greater awareness for the potential of innovative technologies in education will change this situation. In a related way, publishing companies and, by extension, materials developers have been reluctant to give technologically driven materials much more than ancillary status to a course. Again, this situation is likely to change as hardware facilities are improved in educational institutions.

In spite of the relative lack of demonstrated empirical evidence for the effectiveness of such technologies, it cannot be denied that they constitute the *only* medium by which the dynamic, contextualized, culturally rich world of the L2 can be brought into the classroom or become part of the dynamic learning experience of the learner. As L2 instructors, we should then perhaps consider that the problem has not been inherent in the technologies adopted, but rather that we have been unable to verbalize suitable methodologies and apply them in the design of materials which effectively integrate the use of specialized technology.

The most recent developments in computer-driven communications technologies provide us with a new set of tools to support the enhancement of L2 acquisition. Such tools again suggest that we can access the world of the L2, in its various multimedia manifestations. We can begin to interact with this world either in a simulated interpersonal dimension through the use of various types of communications resources, or through other pedagogically useful ways. And our ability to offer instantaneous access to a varied range of resources and materials to the learner, wherever he or she may be located, now permits a flexibility toward curriculum structure and materials design that is unprecedented in education. These types of technologies may provide the incentive for achieving L2 objectives in a far more efficient and effective manner than has been possible up to now with more conventional technologies.

In our attempts to find valid ways of integrating computer-driven communications technologies into the L2 curriculum, the following are some of the more crucial implications that should be given careful consideration:

- no single and restricted definition of "distance learning" is likely to prevail. It is inevitable that a wide range of effective technological facilities (in existence and still to be developed) will give rise to numerous models of distance education, coexisting with standard interpretations of traditional education;
- no single method for distribution of electronic materials should prevail. A range of delivery systems should be made available. Large educational institutions are likely to want to distribute information by various methods, including via local networks and servers, Web page locations, and individual consumer products such as CD-ROMs and other stand-alone storage devices. Distance learning within a traditional educational environment implies a diverse student population and diverse technological needs;
- communications technologies of the type described in this article are likely to amplify the educational market in ways hitherto given scant consideration. The technological classroom may become the community classroom. In an environment which permits flexible accessibility to educational materials, schools are likely to be able to provide more of their educational resources to nontraditional learners, and to traditional learners in more nontraditional forms;
- the model by which conventional print-based courseware for L2 acquisition is structured may not apply to the digital and remote access environment. The models for distance configurations described above suggest radically different curriculum structures;
- the relationship between print-based products and digital products needs careful re-evaluation in the electronic era. Consumable workbooks to accompany elaborate digital materials may be more relevant than elaborate course textbooks. A number of aspects of the L2 curriculum continue to need print-based products rather than electronic materials. How the two are related and distinguished may at present not be particularly clear;
- teachers' needs should be given serious consideration. The technological panorama is overwhelming for many teachers who in the majority of cases are only just beginning to use word processing, spreadsheets, and clip-art; teachers should not be expected to integrate remote access technologies into their repertoire of skills without in-depth training.

The above list cannot be considered exhaustive. However, it should be clear that computer technologies are becoming critical components of the L2 curriculum. Use of computer technologies can facilitate the effective and efficient achievement of L2 goals. As long as the integration of these technologies is guided by pedagogically sound L2 objectives, the future language learner will neither have the problems nor the excuses of distance, time, or space that have kept past language learners on the information backroads.[3]

## Notes

1. IRCs are Internet relay chat facilities; MOOs are Multiuser domains, object oriented; MUDs are Multiuser dungeons; and, MUSEs are Multiuser simulation environments.
2. It should be noted that the data cited in Liskin-Gasparro (1982) which provide an indication of the length of time taken to reach a 2+ or advanced-high level of proficiency in a common European language such as French or Spanish were collected from adults attending intensive language training courses in somewhat ideal conditions at the Foreign Service Institute.
3. I wish to thank Kristina Baer of the Houghton Mifflin Publishing Company for her helpful suggestions on an earlier version of this article.

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## Part 3

# Learning, Foreign Languages, and Technology

# Personality and Motivational Factors in Computer-Mediated Foreign Language Communication (CMFLC)

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*The University of Tulsa*

## Introduction

Computer-Mediated Foreign Language Communication (CMFLC) has become very popular in the past few years. As a result, research on CMFLC is thriving, creating interesting shifts in foreign language pedagogy. Classes are moving from rigid lesson plans to unpredictable courses of action, from formality to informality, from unequal to more equal participation, and most importantly from face-to-face interaction to face-to-interface communication. One of the most fascinating findings in CMFLC research is the equalizing effect that electronic discussions seem to generate among on-line participants. Despite this trend, however, questions remain: To what extent is a global explanation of conduct during CMFLC credible? How do the participants' individual traits such as personality, gender, and motivation overlap with equalizing effects observed when using CMFLC?

Keeping these questions in mind, this article will offer an investigation of the role played by the students' personality, motivation, attitude, and gender in CMFLC. More specifically, it will a) review previous research on motivation in foreign language instruction outside the computer realm to show the multifaceted nature of the motivation construct and how it relates to personality and gender; b) examine motivational factors reported to date in computer-mediated communication (CMC); c) present the design and results of an empirical study investigating personality and motivational factors in computer-mediated foreign language classrooms; and d) offer pedagogical suggestions for constructionist foreign language "cyberclasses" as we enter the third millennium.

## Previous Research

### Personality and Motivational Factors in Second Language Learning

The earliest research on the effect of attitude and motivation in second language development is the work by Gardner and Lambert (1972), who established that foreign language learners are driven by two types of motivation, integrative and instrumental. *Integrative motivation* is defined as a learner's intention to identify with the culture of the target language. *Instrumental motivation* is considered to be present when the learner's goal for acquiring a foreign language is practical, i.e., for professional purposes. It was suggested that integrative motivation was more likely associated with foreign language acquisition than instrumental motivation. However, more recent studies on motivation show that this model does not account for the dynamics of the instructional environment (Brown 1994; Crookes and Schmidt 1991; Dickinson 1995; Dörnyei 1994; Ely 1986a, 1986b, 1988; Gardner 1985; Gardner and Clément 1990; Gardner and Tremblay 1994).

When students learn a foreign language in a classroom, *situational motivation* along with *task motivations* add a complex dimension to the issue of attitude. Brown (1994) thus suggests that there are other types of motivation: 1) *global motivation*, accounting for the learner's initial goals in learning a foreign language (instrumental or integrative); 2) *situational motivation*, accounting for the situational comfort, risk taking, and anxiety level in which language learning takes place; and 3) *task motivation*, reflecting the relevance and excitement initiated by *intrinsically* or *extrinsically* motivating activities taking place in class. Intrinsically motivated students show personal and genuine interest in performing a task while extrinsically motivated students participate because of grades, rewards, or requirements to be fulfilled without personal conviction (Deci 1975; Deci and Ryan 1985; Deci *et al.* 1991; Dickinson 1995). Brown's model not only accounts for the students' motives to learn a foreign language; it also shows that the socio-affective environment proves to be a significant factor in maintaining the students' participation in class (Ely 1986a, 1986b). Pica (1987) suggests that even if the student's initial and global motivations are strong, a lack of motivating activities in an instructional environment can hinder language acquisition.

Personality characteristics can also influence the students' attitudes toward second-language learning activities (Ely 1988; Ehrman 1990; Ehrman and Oxford 1988; Oxford 1989; Oxford and Lavine 1992; Moody 1988). Namely, when students are involved in open-ended activities that allow free expression, variables such as risk-taking and sociability predetermine positive attitudes. However, the same variables predict negative attitudes when students are involved in highly structured grammar-based activities (Ely 1988). Ehrman and Oxford (1988) investigated the influence of personality in more detail and found that *Feeling* students (for definition, see section in this article on Research Design) were more motivated by communicative activities and social interaction, while *Sensing* students were more motivated by metacognitive activities (i.e., structural practice), implying thus that task motivation is personality related. In this study, Ehrman and Oxford measured the personality characteristics of their students with the MBTI (Myers-Briggs Types Indicator), an instrument originally designed according to Jung's psychological theory that personality variation relies on orderly and systematic dynamics (Jung [1921] 1976). (See section in this article on Research Design.)

In addition to personality differences, Ehrman and Oxford (1988) indicated that gender differences are a significant factor in categorizing motivation types. In their study, women tended to demonstrate more integrative motivation when learning a foreign language because their communicative style was more socially based (*Feeling*) than that of men (*Thinking*) who were more likely to demonstrate instrumental motivation, i.e., learning a foreign language in order to be more competitive professionally. Along the same line, Ludwig (1983) found that a majority of male students enrolled in foreign language classes because they were useful (instrumental motivation) whereas female students were more likely to register in foreign language classes because they were interested in the target language culture and planned to travel and live in the target language country (more closely related to integrative motivation).

In a more recent article, Oxford and Lavine (1992) hypothesized that mismatches between the instructors' teaching styles and the students' learning styles can also lead to anxiety and negative attitudes in the foreign language classroom and have a negative impact on situational and task motivations. This hypothesis remains to be tested, but it is worth including in a multifaceted definition of motivation.

In summary, the psychodynamic framework elaborated here on the basis of individual styles and classroom dynamics clearly suggests that motivation constitutes a complex variable. The students' initial and global objectives, situational comfort, task perception, personality, and gender—notwithstanding the compatibility (or lack of it) of learning and teaching styles—are strong determinants of outcome in the foreign language classroom. Given that individual characteristics are considered to be an essential factor affecting communication, whether computer-mediated or not, CMFLC needs to be investigated in the light of such differences. The following section will therefore review key studies in the area of computer-mediated communication (CMC) and categorize their findings within the framework just presented.

## Motivational Factors in Computer-Mediated Communication

Computer-Mediated Communication (CMC) is synchronous or asynchronous electronic mail and computer-conferencing, by which senders encode in text messages that are relayed from senders to computers to receivers (Walther 1992, p. 52). In the realm of foreign language instruction, Johnson (1991) mentions that since computers have become new participants in foreign language classrooms, sociodynamic factors, situational motivation, and task motivation have taken new shapes: "Rather than isolating and promoting asocial behavior, as many have feared, there is a growing body of evidence that computer use promotes new ways of working together . . . and that these kinds of interaction are related to higher levels of interest, motivation, and achievement" (Johnson 1991, p. 65). Therefore, a closer look at how computers, and more specifically on-line exchanges, contribute to *situational* and *task motivation* is pertinent here. The analysis of motivational factors in CMFLC is a new field of research, and to my knowledge, only three empirical studies have directly addressed the issue of motivation in CMFLC (Beauvois 1995; Beauvois and Eledge 1996; Warschauer 1996a). Other studies in CMC also provide valuable observations on motivational factors and will be included in the following review.

### *Situational Motivation*

Situational motivation was previously defined as resulting from the context (positive or negative) in which language acquisition takes place. In light of previous research conducted in foreign language instruction, the constructs that constitute situational motivation include: a) anxiety (level of comfort), b) risk taking, c) sociability, and d) teaching styles.

a) *Anxiety and Comfort.* Anxiety in CMFLC can be twofold: it can be language and/or computer related. Language anxiety was found to be minimized by on-line conferencing because it provides a less threatening environment for students to communicate in the target language (Beauvois 1995; Kern 1995; Warschauer 1996a): "an almost unanimous ninety-two percent of the students interviewed cited the low stress atmosphere of the network lab as the reason for using the target language" (Beauvois 1995, p. 183). Similarly, the informal atmosphere of synchronous electronic exchanges may reduce students' communication anxiety (Kern 1995). Nonverbal clues which can be linguistically inhibiting during face-to-face interactions, i.e., status, gender, race, facial expressions, body language, personality, time constraints, and so forth, are de-emphasized during on-line discussions (Warschauer 1996a, 1996c). This promotes a low affective filter and therefore less anxiety about communicating. However, anxiety during on-line discussions can be caused by the participants' increased tendency to express themselves openly. A decrease in social inhibition can initiate more "flaming" (or "bashing"), thereby generating tension and curtailing communication (Warschauer 1996b).

With regard to computer-related anxiety, Warschauer (1996a) notes that the degree of computer literacy does not affect the students' positive attitude in CMFLC and that confidence in computer use keeps improving when students are properly guided through the computer skills needed to perform a task. The students' confidence, Warschauer explains, is further enhanced when they have many opportunities to use electronic conferencing so that the computer skills required for such interactions become more automatic.

Regarding the students' comfort level, basic rules of environmental comfort need to be followed if computer-mediated activities are conducted in a computer laboratory: Microcomputers should not be in a noisy and uncomfortable environment, and if computers are to be used outside of regular classroom hours, computer laboratories should be as accommodating as possible. A lack of organization in this aspect can be annoying to students (Murphy-Judy 1996).

b) *Risk-taking.* Recent research on computer-mediated communication suggests that on-line discussions motivate students to be more creative with the target language than face-to-face interactions, which suggests that students take more risks on-line than on paper (Beauvois 1995; Chun 1994; Kelm 1992; Kern 1995; Kroonenberg 1994/1995): "several students reported that the urgency to write, combined with lessened concern about making mistakes, was a freeing experience" (Kern

1995, p. 469). Kern also reports that students are linguistically more creative and sophisticated during computer-mediated discussions. Considering that risk-taking is a strong predictor of successful foreign language development (reviewed in Meunier 1994a), research on synchronous electronic discussions further emphasizes that authentic communication remains an efficient teaching technique which promotes students' motivation, positive attitude, and confidence, the necessary conditions for language production (Beauvois 1995; Beauvois and Eledge 1996; Chun 1994; Kelm 1992; Kern 1995; Kroonenberg 1994/1995). The simple fact that 80% of Kern's students (1995) felt more confident writing in French and that 78% felt they improved their writing skill certainly supports this idea.

c) *Sociability.* Since CMFLC minimizes anxiety, promotes risk-taking, and motivates authentic exchanges, synchronous electronic discussions were also found to enhance a sense of group cohesion and friendship between students, a social asset that was reported to have a positive effect on classroom participation during oral conversations (Beauvois 1995; Chun 1994; Kern 1995; Paramskas 1993). However, CMC on a synchronous network can sometimes exercise a negative impact on sociability when too many students are on-line at the same time (Moran 1991): participants may experience frustration when trying to keep up with the flow of messages which appear on the screen. In such cases, on-line exchanges run the risk of looking more like "divergent monologues" than "convergent conversations" (Moran 1991, p. 52). Beauvois (1995) actually noticed this drawback at the onset of her study and data collection, which made her decide to divide her class into smaller group conferences. When asked what group format students preferred, only 34% of the students expressed a preference for smaller group interactions. Other students (20%) mentioned that for the sake of discussion manageability during large group conferencing, they formed their own groups of four or five participants. In his study, Kern (1995) noticed that because of the students' increased interest in one another and because they liked the topics discussed, one of the strategies they used so as to follow the entire discussion was to write shorter messages. More research is needed to understand the complex process of communication through the computer and to understand how students seek "convergent conversations" and when they fall into the pattern of "divergent monologues." Overall, however, the conceptual framework of CMFLC relates well to Vygotsky's theory of *zone of proximal development* (1978) which posits that language development is essentially a social phenomenon, a process during which students not only learn by means of their independent ability but also with an ability that keeps growing through social interaction.

d) *Teaching Styles.* With the advent of computers, teaching styles have taken new directions: from the role of expert, the instructors' role has shifted to that of participant. Kern (1995) reported that instructors raised more content-based questions during electronic exchanges, while during oral discussions they raised more metalinguistic questions. According to Riel (1990), network-based interactions boost both students' and faculty's self-esteem: "When teachers get excited about a learning project, students share their teachers' enthusiasm and the quality of the students' work increases" (Riel 1990, p. 459). However, Warschauer (1996a) found that there were significant differences in the students' motivational levels due to different teaching practices: " . . . the class that had the lowest mean motivation score . . . was the class whose computer work was most peripheral to the goals and structure of the course" (Warschauer 1996a, p. 16). Research also suggests that controlling teaching styles may still find their way to being oppressive in CMFLC (Janangelo 1991). Overall, the research just reported indicates that teaching styles in a computer-assisted environment trigger different reactions among students:

***Table 1***

**Teaching Styles in a CALL Environment**

| Motivation / Teaching Style | Most Motivating | Motivating | Somewhat Motivating | Least Motivating |
|---|---|---|---|---|
| Flexible and Student-Centered | Yes | Yes | No | No |
| CALL Integrated Into Curriculum | Yes | No | Yes | No |

## *Task Motivation*

Task motivation was earlier defined as reflecting the relevance and excitement initiated by a) *intrinsically* or b) *extrinsically* motivating activities. According to Church (1988), the students' intrinsic motivation is not enough to maintain long-term motivation to use computer-based activities. He suggested that extrinsically motivating strategies such as regular requirements to use programs designed for computer activities along with systematic grading were needed. Numerous studies showed that computer- and network-based language teaching intrinsically motivates students, and yet that computer-based assignments need to be fully integrated into the language course in order to generate a balance between intrinsic and extrinsic motivation in an instructional environment (Barson, Frommer, and Schwartz 1993; Beauvois 1992, 1995; Bump 1990; Chapelle and Jamieson 1986; Church 1988; Cohen 1995; DiMatteo 1990; Ehrman 1990; Eldred 1991; Johnson 1991; Kelm 1992; Kern 1995; Kroonenberg 1994/1995; Meunier in press; Neuwirth 1992; Smith 1990; Warschauer, Turbee, and Roberts 1994; Warschauer 1996a, 1996b).

Earlier studies in foreign language pedagogy (reviewed in Meunier 1994a) clearly show that the amount of communication between participants correlates with how open a task is (an open-ended task allows students to relate creatively among each other, in contrast to structured activities focused on grammar rules and limited possibilities). The same premise seems to apply to CMC. Indeed, CMC activities may be structured in such a way that they can be "relationship focused," "task focused," or a balanced combination of both (Jones 1995, p. 23). According to recent studies (Cohen 1995; Kern 1995), the nature of the task—or topic to be discussed—during CMFLC also seems to predetermine the nature of the students' interaction, and whether or not students will engage in "divergent monologues" or "convergent conversations" (Moran 1991, 1992). Studies conducted in Europe show that task motivation primarily stems from the students' freedom to conduct conversations not structured by faculty (Cohen 1995): the more scholarly a topic, the less enthusiastic and intrinsically motivated students are. Cohen explains that in order to enhance participation during CMFLC, one must keep in mind that students are intrinsically drawn by interdisciplinary and universal topics as well as by topics related to their own generation. Flores (1990) warns us that highly structured computer tasks "further divorce language from experience" (Flores 1990, p. 109). We are thus led to hypothesize that 1) task motivation may depend on the instructor's teaching style (see Table 1 above), 2) task motivation preconditions situational motivation, and 3) CMFLC can be intrinsically motivating if tasks allow students to be both "relationship focused" and "task focused."

## Individual Factors in Computer-Mediated Communication

### *Personality Differences*

The issue of personality and identity in CMC has become a new area for research among sociopsychologists interested in "hyperpersonal" relationships in cyberspace (Turkle 1995; Stone 1995; Walther 1992, 1996). Psychologist Sloan (in press) mentions that through communication, personalities can be transcended and identities reshaped, a process to which CMC seems to lend itself well (Turkle 1995). Generally, the variables used to measure personality in CMC research fall under the following categories: 1) interactive styles (extrovert, introvert), and 2) cognitive styles (data processing, problem solving). For instance, Ellsworth (1995) and Beauvois (1995) explain that CMC helps introverted students develop a more extroverted style. Ellsworth (1995) notes that students who prefer observation without the interference of personal interaction learn how to combine both while on-line. Eastmond (1993) reports that CMC helps students who like to receive clear directions learn how to make decisions for themselves. Meunier (1995, 1996a, 1996b) shows that linear learners adapt to the hypertextual environment (non-linear in nature). These classroom studies confirm research on personality differences in cyberspace which posits that CMC facilitates pluralism, otherwise referred to as the "equalizing" effect in the field of education (Jones 1995; Turkle 1995). Considering that CMC extends the "possibilities for self-discovery, [and] even self-transformation" (Turkle 1995, p. 260), CMC seems to offer a social space which facilitates mental access to both preferred and less preferred cognitive styles.

### *Gender Differences*[4]

Studies conducted by Meunier (1993, 1994b, 1995, 1996a) indicated gender and personality differences in hypertextual reading. In these studies, male students' cognitive style was more likely to be linear than that of females, showing thus more difficulty in skimming and scanning hypertexts for relevant information. Also, based on sociolinguistic studies (Coates 1993; Meunier 1994b) men tend to speak more than they listen in public arenas, a communicative style which often silences women. Studies in CMC indicate that gender-specific communicative styles seem to follow women and men into the on-line community (Cherny 1994; Herring 1992; Herring, Johnson, and DiBonedetto 1992; Kramarae 1993; Truong 1993). Herring *et al.* (1992) report that on a feminist electronic discussion list,

> . . . women still contributed only 30% of the messages as compared to 70% contributed by men. . . . The contributions of women at one point exceeded those of the men for two consecutive days. The subsequent disruptions that took place, including male accusations of being "silenced" in the discussion and the threats of several men to unsubscribe from the list, provide support for the view that women and men do not have equal rights to speak in public; by contributing more even temporarily, and on a feminist (and a female-introduced) topic, women in the group violated the unspoken convention that control of public discourse belongs rightfully to men (p. 2).

Interestingly, research discloses major differences in gender-specific discursive patterns between Global Access Networks (GAN) and Local Area Networks (LAN). While gender-specific communicative styles remain observable in GANs, gender differences fade away in LANs where male and female students participate more equally during on-line discussions (Flores 1990; Selfe 1990). This discrepancy between GANs and LANs may be due to the fact that LANs more typically take place in an instructional environment where flaming may be perceived as inappropriate given that on-line discussions are often moderated by faculty—GANs function with a lesser sense of central authority. Furthermore, LAN participants are more likely to know each other than GAN participants, which may lead to more courtesy.

## Summary

Overall, evidence suggests that in spite of the equalizing effect often reported in CMC, personality factors often remain salient. The reasons why some individuals have a low motivation level in a class which scores high on the motivation scale are still unclear. Although some studies on motivation and attitude in CMFLC have contributed a great deal by revealing the positive effects of CMC, they fall short in providing answers to faculty who are concerned with the specific needs of unenthusiastic students. Due to the fact that statistical and quantitative studies generally present global findings, specific students with low motivation scores remain misunderstood.

## Research Method

### Purpose

The purpose of this empirical study is to examine the students' perspectives on what motivates them to participate more or less actively in computer-mediated foreign language communication (CMFLC). More specifically, this study addresses the following research questions:

1) What motivational and affective factors are associated with networking participation?
2) What motivational and affective differences are there between students of various personalities?
3) What are the motivational and affective effects of different teaching styles?

The exploration of psychological traits such as motivation types, perceived language and computer anxiety, as well as personality profiles and gender differences, will shed light on affective factors which influence students during on-line discussions. The ultimate goal of this research is to provide recommendations addressing individual differences during synchronous CMFLC.

### Population

The data was collected in three third-year French (fifth and sixth semesters) and two third-year German (fifth semester) writing classes at the college level in which synchronous CMFLC sessions were regularly scheduled in a computerized language laboratory. A total of 64 students (French: 54 students; German: 10 students / fifth semester: 46 students; sixth semester: 18 students / female: 50 students; male: 14 students) and five instructors (one instructor taught two classes) volunteered to participate in this study. In all six classes, CMFLC sessions took place throughout the semester using a computer program called *Daedalus InterChange* (*Daedalus* 1994). This program is based on a synchronous computer networking system which allows written exchanges in real time. This type of electronic exchange is similar to electronic mail except that it is a spontaneous interactive writing environment: each student writes messages in a window in the bottom half of the screen while messages sent by all other classmates appear in a window in the top half of the screen. Students keep reading, writing and sending messages, thus continuously contributing to the electronic conversation.

### Design

This study was designed to allow students to express their own views and to describe their experiences during synchronous on-line discussions in French and German classes. To answer the research questions, a survey approach was used and was judged most appropriate for this study (Johnson 1992). The questionnaire used for this study (Appendix 1) is a combination of two formats: (1) *closed* (selection of one response from a multiple-choice pool), and (2) *open-ended* (allowing student self-expression). The purpose of this double-format questionnaire is to collect both quantitative and qualitative (interpretive) information.

### Instrumentation

Students were given two questionnaires at the end of the semester: 1) a 43-question survey (Appendix 1) designed to measure the students' motivation types; and 2) the Myers-Briggs Type Indicator (MBTI) self-scorable personality test (Myers and Myers 1987a, 1987b) designed to measure four psychological traits:

1. *Extroversion (E) or Introversion (I).* An Extrovert is energized by interaction with others and places primary interest in the outer world of people and events. An Introvert is energized by solitary activities and is oriented primarily toward internal concepts and ideas.
2. *Sensing (S) or Intuition (N).* The Sensing person sees the world in a practical and factual way. An Intuitive person is drawn to the innovative and theoretical.
3. *Thinking (T) or Feeling (F).* Thinkers make decisions on impersonal, objective, cause-and-effect criteria. Feelers make decisions on personal or social values, interpersonal relationships, and their own feelings or those of others.
4. *Judgment (J) or Perception (P).* A Judger prefers closure, structure, organization, and control. A Perceiver values spontaneity, flexibility, freedom, and autonomy. (Ehrman and Oxford 1988).

For each statement on the motivation survey, students circled the answer which best reflected their opinion as described on the following scale: SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree. An invitation to include personal comments followed every statement on the survey so that students could provide self-reports of a more discursive nature. The Myers-Briggs Type Indicator (MBTI) self-scorable test was used to determine whether the variability in personality profiles was a systematic predictor of motivation and attitude types. For each of the four psychological constructs contained in the MBTI, that is, (1) *Interactive style* [Extroversion (E) vs. Introversion (I)], (2) *Information gathering* [Sensing (S) vs. Intuition (N)], (3) *Information Processing* [Thinking (T) vs. Feeling (F)], and (4) *Organization of the outside world*, [Judging (J) vs. Perception (P)], the students' answers to the test questions reflected their preference for one pole over the other. In this study, the distribution of the students' personality was as follows: Extrovert: 32 students; Introverts: 32 students / Intuition: 46 students; Sensing: 18 students / Feeling: 38 students; Thinking: 26 students / Judging: 27 students; Perceiving: 37 students.

## Procedures

Participating faculty distributed both the motivation questionnaire and the personality test to students who agreed to participate in the study. A student was in charge of collecting questionnaires and personality tests and of depositing the envelope in the researcher's mailbox. The participation rate was distributed as follows: class # 1: 100%; class # 2: 30%; class # 3: 100%; class # 4: 100%; class # 5: 50%; class # 6: 30%, an overall student participation of 70%. The survey questions (Appendix # 1) were worded to reflect the initial, situational, and task motivations as well as student attitudes. The survey questions were assessed by other pedagogues in the field of foreign language teaching in order to ensure maximum comprehensibility of each item. The questionnaire was organized as follows: 1) Global and Initial Motivation (questions 1–4); 2) Computer Background (questions 5–6); 3) Anxiety, Comfort Level (questions 7–16, 24, 30); 4) Risk-Taking (questions 18, 21–22, 26–27); 5) Sociability (questions 17, 19, 23, 28–29); 6) Task Type (questions 20, 25, 31–37); Overall Attitude Toward CMFLC (questions 38–43). Items were scrambled in order to avoid answers that could have been directed by apparent themes. Some items were retested with negative or contrary statements for the purpose of getting reverse coded answers. This is a way to ensure the reliability of responses given by students who tend to answer surveys positively without reading the questions (Johnson 1992).

### Analysis

Frequency distributions and Chi-square analyses (Haycock *et al.* 1995) were used in order to 1) compare the distribution of answers obtained for each question on the motivation survey, 2) determine whether the observed differences between genders, personalities, semester levels, or classes (independent variables) were significant (Brown 1988; Hatch and Lazaraton 1991), and 3) determine the effects of initial motivations (instrumental or integrative) and computer background on other affective factors tested in the survey. The quantitative analyses of this research are supplemented by the analysis of the students' open-ended comments on the motivation survey to understand and better interpret the differences in attitudes and motivation, as well as to provide pedagogical recommendations for accommodating students who are less motivated by CMFLC.

## Results and Discussion

### Overall Attitude toward CMFLC

Analysis of students' questionnaire responses (see Appendix 2) indicates that, although only 32% of the students report an integrative motivation, 83% of the students have a positive attitude toward CMFLC and 78% of them are intrinsically motivated. As a whole, students seem undecided (see Appendix 2, item 38) as to whether or not communicating via computers has increased their interest in continuing their foreign language study. However, keeping in mind that 61% of the students had not enrolled in the foreign language writing classes with the intention of majoring in French or German (see Appendix 1, item 4), a surprising 24% of these students report considering foreign language studies as a major due to CMFLC (see Appendix 1, item 38). This is significant information for universities seeking ways to foster enrollment in foreign language programs.

There are, however, significant differences (Chi Square = 7.45; $p$ = .02; item 38) between French and German students (see Table 2, item 38): 70% of the German students do not believe that CMFLC furthered their interest in foreign language studies (versus only 25% of the French students). Open-ended comments by German students reveal that they perceive on-line exchanges as too structured because they had to answer questions raised by faculty in a limited time, which restricted opportunities to exchange comments among peers. When asked if CMFLC is a disappointing or a positive experience (items 39, 40), 83% of all students consider CMFLC sessions positive, and only 3% do not (see Appendix 2). Those who feel that CMFLC is disappointing present their point of view in terms of expected similarities with written activities on paper, as illustrated in the following statement: "It has not been bad, disappointing maybe, because I am a writer and I think most clearly best through a pen. I thought this might be similar with *Daedalus*, [but] it wasn't."

Concerning the effects of CMFLC on the students' personal goals (see Appendix 1, item 41), only 41% of the students feel that CMFLC has helped them reach their personal objectives, 39% are undecided, and 20% think that CMFLC had no impact (see Appendix 2). Frequency distributions reveal differences between French and German students (see Table 2 below, item 41) (see Table 2, item 33): 40% of the French students think that computer sessions have helped them reach their personal goals, versus only 10% of the German students; 35% of the French students and 60% of the German students are undecided; 18% of the French students and 30% of the German students do not feel that the use of computers has helped them reach their personal goals. Open-ended comments reveal that students with the lowest motivation are those in classes where 1) too much peripheral equipment is used, 2) synchronous computer exchanges are too monitored and structured by faculty, 3) faculty feel uneasy with the equipment, and 4) network-based exchanges are occasional and not fully integrated into the course.

However, while 73% of students with a preference for "Thinking" information processing favor more computer-mediated written discourse (see Appendix 1, item 33), only 50% of students with a preference for "Feeling" information processing do so (Chi Square = 8.42; $p$ = .06). Interpretive data indicate that Thinking students like to take their time to elaborate well-constructed responses (a more difficult task in rapid face-to-face conversations), hence their favorable attitude toward computer-mediated communication. Interestingly, Feeling students, on the other hand, wish to have the kind of extralinguistic information that face-to-face conversations naturally provide, to help them understand and interpret messages.

*Table 2*

**Overall Attitude toward CMFLC: Summary of Significant Differences**

| Item | Description | Significant Differences | |
|---|---|---|---|
| 38 | Communicating via computers has increased interest in continuing foreign language study. | 70% of German students disagree. | 25% of French students disagree. |
| 41 | Computers helped in reaching personal goals. | 10% of German students agree. | 40% of French students agree. |
| 33 | Favor more computer-based sessions. | 73% of Thinking students agree. | 50% of Feeling students agree. |

## Situational Motivation

### *Anxiety*

Initially, 33% of the students (see Appendix 2) were nervous about using a computer in the foreign language writing class (see Appendix 1, item 7), and 15% felt that going to a computer laboratory would be intimidating (item 8), some even added the word "boring." According to the students' open-ended comments, those who had initial anxieties were either students more familiar with Macintosh computers, who did not feel comfortable with IBMs, students who had not had positive previous experiences in language laboratories, or students who naturally feel nervous in new situations or when faced with unfamiliar tasks. Nevertheless, 89% of the students feel that the computerized language laboratory in which CMFLC was conducted is a comfortable place (see Appendix 2, item 9). Some students mention that spending time in the language laboratory, as part of regular class activities, helps diminish their initial anxiety, as illustrated by the following statements: "It seems more comfortable now that I spend every other Friday there," "the technology is incredible, and the staff is always willing to help." Students who do not feel comfortable (5%) are more likely to complain about the fact that there were too many people in the laboratory and that they would rather be alone to write. Overall, a majority of students (87%) experience a low level of anxiety (see Appendices 1 and 2, item 10) during CMFLC, mostly because students appreciate the flexibility that CMFLC offers. Those who score high on the anxiety scale (7%) admit that they lack confidence in sharing their opinions publicly, and no mention was made of discomfort due to anxiety about their computer skills or their language ability.

Further analysis (see Appendix 1, item 11) reveals that 60% of the Intuitive students feel more at ease than Sensing students (44%) during on-line discussions than during regular class discussions (item 16, Chi Square = 6.95; *p* = .03; see Table 3 below, item 11). Intuitive students indicate that they are "thrilled" by the richness of communicated opinions, while Sensing students pay more attention to language forms than to content before sending their electronic message to the rest of the class (item 14). Sensing students mention that writing under a pseudonym would encourage them to participate more during electronic exchanges because they would feel less worried about mistakes. Although most students (72%) do not mind signing their electronic messages with their real names (see Appendix 2, item 15), Sensing students (40%) believe that they would participate more if they could communicate with an alias (only 26% of the Intuitive students share the same opinion), a statistically significant difference for item 16 (Chi Square 6.95; *p* = .03). These results (see Table 3, item 16) strongly suggest that Sensing students are more likely to develop language-related anxiety during on-line interactions than Intuitive students. MBTI theorists (Briggs Myers and McCaulley 1992) explain that Intuitive types are more likely to "follow their inspiration" (p. 80), while Sensing types tend to mistrust inspiration and be more careful about facts and details, thus more prone to perfection. This leads us to assume that if Sensing students in this study lack background information on topics being discussed, they probably shift their attention to other details like language accuracy. Their concern for language perfection may explain why they feel less comfortable than Intuitive participants during on-line discussions.

Interestingly, Feeling students often comment that CMFLC can lead to harsher discussions than oral discussions, which implies that Feeling students may be more sensitive to flaming. In addition, some Feeling students mention that "the impersonal qualities" of CMFLC make them feel somewhat uncomfortable "as if something essential was missing" and that they would rather "prefer talking in a very small group to live people instead of to a computer." Chi Square analyses reveal that Thinking students are less worried than Feeling students (see Table 3, item 13) by the fact that everyone in the class can read their ideas on the screen (item 13; Chi Square = 6.26; *p* = .04; SD/F = 63%; SD/T = 81%). Nonetheless, in spite of these personal differences, none of the on-line participants (item 12) feel nervous during CMFLC to the point that writing is impossible.

***Table 3***

**Anxiety: Summary of Significant Differences**

| Item | Description | Significant Differences | |
|---|---|---|---|
| 11 | More comfortable during computer sessions than during regular classes. | 60% of Intuitive students feel more at ease during CMFLC | 44% of Sensing students feel more at ease during CMFLC |
| 16 | Having an alias would encourage students to participate more during CMFLC. | 40% of Sensing students believe they would. | 26% of Intuitive Students believe they would. |
| 13 | Students worry because everyone in the class can read their ideas on the screen. | 63% of Feeling students are not worried. | 81% of Thinking students are not worried. |
| 30 | Students are overwhelmed by the flow of messages received on the screen. | 55% of sixth-semester students are. | 19% of fifth-semester students are. |
| | | 43% of male students are. | 24% of female students are. |
| | | 41% of Introverts are. | 15% of Extroverts are. |
| | | 50% of IP students are. | 0% of EJ students are. |

Due to the students' active participation in CMFLC, sixth-semester students (55%) report that they feel overwhelmed by the flow of messages on the computer screen (see Appendix 1, item 30): "If you take the time to think something through and type it out, the class is far beyond the topic by the time you finally finish." A lower percentage of fifth-semester students (19%) share the same feeling (see Table 3, item 30). This significant difference (Chi Square = 6.62; $p = .03$) can be explained by the fact that higher-level language students express themselves more than less proficient students, which, although positive for writing skills, fosters reading anxiety when they address the flow of incoming messages. Males (43%), especially, appear more overwhelmed than females (24%) by the flow of messages (see Table 3, item 30), which seems to confirm previous findings that males have more difficulty than females in hypertextual reading.

In addition to gender differences, personality also is a relevant factor in handling "reading anxiety" (see Table 3, item 30): Introverts (41%) feel more disturbed by the rapid flow of messages on the screen than Extroverts (15%) (Chi Square = 6.73; $p$ = .03). This difference can be explained by the fact that inner thoughts and reflections stimulate Introverts while interaction energizes Extroverts. Similarly, none (0%) of the EJ students feel overwhelmed by the flow of messages on the screen (see Table 3, item 30) while 50% of the IP students do (Chi Square 12.33; $p$ = .05). In addition to being Extroverts, EJ students explain that contributions are not interrupted, unlike face-to-face conversations (keeping in mind that the Judging trait leans towards a greater sense of organization than the Perceiving trait). However, open-ended comments by IP students do not allow for a clear explanation of their higher anxiety. A plausible explanation is that IP students had to adjust to a less preferred interactive style (from Introvert to Extrovert—because of the richness of interaction—and from Perceiving to Judging—because of the impossibility to interrupt conversations). This leads to the hypothesis that cognitive adjustments can cause anxieties, whose impact needs to be further investigated in the area of foreign language studies and CMFLC. Overall, in spite of the fact that some students are intimidated by the number of messages posted on the screen, 81% of the students appreciate participating at their own pace (see Appendix 2, item 24).

## Risk-taking

General results (see Appendices 1 and 2, item 18) indicate that students do not experiment more with the language in CMFLC. Yet, the following comments reveal that students take more risks experimenting with ideas during on-line discussions, whereas they experiment more with the language using dictionaries and grammar books while writing papers at home: "I focus more on relaying my opinions rather than experimenting with my writing in the lab"; "I feel more able to experiment when I am writing on paper with a dictionary"; "It is easier to concentrate on structure and style when writing papers." Interestingly, Thinking students experiment more with their writing in CMFLC (54%) than Feeling students (18%; Chi Square = 8.90; p = .01; see Table 4 below, item 18). NF students explain that they do not appreciate being the center of attention during on-line discussions and that they are inhibited by the fact that some messages posted on the screen can become the point of scrutiny and analysis by other on-line participants.

They explain that they do not mind sharing their ideas, but that they worry about harsh criticism in public.

As a whole, students cannot determine whether using the *Daedalus* writing environment has helped them gain confidence in their writing or not (see Appendices 1 and 2, items 21 and 26). French and German students differ in their answers (see Table 4, item 21): 50% of the German students disagree with the statement that CMFLC has helped them gain confidence in their writing, versus only 20% of the French students. Significant differences in confidence gain (Chi Square = 18.03; $p$ = .02) show between instructors (see Table 4, item 21): Instructor 1 = 11%, Instructor 2 = 33%; Instructor 3 = 75%; Instructor 4 = 39%; Instructor 5 = 0%). Open-ended comments indicate that French and German students link the concept of confidence to different criteria: French students are more concerned about their increased ability to share opinions and ideas, while German students seem to put more emphasis on language accuracy, as illustrated by the following observation: "We don't use it in a way that emphasized quality of writing, just as casual conversation about a certain topic, so this isn't a kind of writing with which one gains confidence." A summary of students' comments is as follows:

1) CMFLC alone does not address the students' need to develop language accuracy in their written work;
2) students gain confidence when they see that they are understood by their peers and when they realize they have increased ability to sustain a conversation;
3) students gain confidence when time and session formats allow convergent dialogues and when topics are interesting to discuss; and
4) some students mention that they gain confidence in their speaking skills rather than in their writing skill.

When asked if CMFLC has helped improve the quality of their writing (see Appendices 1 and 2, items 22 and 27, Appendices 1 and 2), students are again undecided. Further analysis shows a significant difference (Chi Square = 29.63; $p$ = .0002) between French Instructor 3 and German Instructors 2 and 5 (see Table 4, item 22): 83% of the students taught by Instructor 3 mention that they improved the quality of their writing while none of the students (0%) taught by Instructors 2 and 5 do (confirmed by a statistically significant difference between French and German students [Chi Square = 8.07; $p$ = .01]). All other students taught by Instructors 1 and 4 are also far from displaying the same level of confidence as that of students with Instructor 3 (Instructor 1 =11%; Instructor 4 = 30%).

Significant differences (Chi Square = 6.26; $p$ = .05) also show between Feeling (16%) and Thinking (42%) students (see Table 4, item 22). Qualitative data indicates that on-line discussions foster language monitoring and analysis among Thinking students ("I find I spot others' mistakes quickly and look for them more carefully in my own writing") while Feeling students seem to have a lesser cognitive ability for foreign language monitoring ("Maybe in ways that I'm not seeing, it would be for our professor to decide"). Due to differences between Feeling and Thinking students, the distribution of these personality traits was checked within all classes to see if the instructor effect was in fact a personality effect possibly caused by the uneven distribution of personality and cognitive traits. And, indeed, Instructor 3 had a class with a majority (74%) of Thinking students (Instructor 1 = 33%; Instructor 2 = 41%; Instructor 4: 27%; Instructor 5 = 25%). Further research is therefore needed to investigate how personality differences and instructional styles intersect.

***Table 4***

**Risk-taking: Summary of Significant Differences**

| Item | Description | Significant Differences | |
|---|---|---|---|
| 18 | Students experiment more with their writing while using *Daedalus* than when writing assignments to be handed in on paper. | 54% of Thinking students experiment more with *Daedalus*. | 18% of Feeling students experiment more with *Daedalus*. |
| 21 | *Daedalus* has helped students gain confidence in their writing. | 50% of German students disagree. | 20% of French students disagree. |
| | | 75% of students with Instructor 3 agree. | 0% of students with Instructor 5 agree. |
| 22 | *Daedalus* has helped students improve the quality of their writing skills. | 83% of students taught by Instructor 3 agree. | 0% of students taught by Instructors 2 & 5 agree. |
| | | 42% of Thinking students agree. | 16% of Feeling students agree. |

### *Sociability*

The level of sociability displayed during CMFLC is remarkable: **99%** of the students declare that they are interested in what their peers write during on-line discussions (see Appendices 1 and 2, item 19). The largest variance is found between students taught by Instructor 2 (90%), and those taught by Instructor 4 (100%). Based on the students' open-ended comments, conversations with Instructor 4 were open-ended and essentially focused on a social topic previously announced and on which students could do some reading in the target language prior to attending CMFLC sessions. Students could write as much and as often as they wanted. Sessions organized by Instructor 2 were more structured and allowed less flexibility for open discussions: Students were asked to give short answers to questions posted by the instructor about a movie that students had to watch at the beginning of the session. This format, based on the students' comments, seems to have led to divergent monologues that decreased authentic interactions, as illustrated in the following comments: [Instructor 2] "There was no time to communicate with others in the class. All we did was answering the questions of our teacher"; "Allow more time for *Daedalus*: we often run out of time after watching a video and answering questions"; "I don't feel that the computer sessions have contributed to my experience with my peers because we go, watch a movie, critique, and move on"; "Use the computers for longer writing rather than just short sentences." [Instructor 4] "I am interested in what my peers write especially if what I write causes another person to reply to me"; "It's always interesting to see new opinions"; "Their comments help direct me. The exchange is usually positive"; "I love to hear other people's ideas, and thoughts. I can learn a lot in just one computer session about the topic and the people." The tone of each set of comments is remarkably different and clearly shows that students who fail to appreciate social interaction on-line are primarily uncomfortable due to limitations imposed by teaching style.

Likewise, a statistically significant variance (Chi Square = 3.63; $p$ = .05) emerges between genders in terms of communication (see Table 5 below, item 23): While 100% of the female students are interested in their peers' ideas, a lower percentage of male students (92%) are. In their open-ended comments, male students indicate that they have difficulties keeping up with the flow of messages, while female students explain that they read their classmates' messages to get a sense of direction for further contribution. Interestingly, one male student comments: "I feel more like I'm communicating, rather than competing," which implies that he perceives face-to-face interaction as more competitive and CMC experience as more cooperative. Although this observation made by only one student is obviously not enough to jump to generalizations, we may wonder to what extent other students may have silently or subconsciously shared or felt a similar impression. This question suggests that further research is needed to know if, indeed, classroom FL discussions are felt more competitive than CMFLC.

When comparing the sociability level during CMFLC with that of regular FL sessions (see Appendices 1 and 2, items 23 and 28), students respond that they are similarly involved in both settings. However, further analyses of distributions indicate that Introvert students (59%) and Judging students (63%) feel they participate more on-line than in classroom discussions, as compared with Extrovert (40%) and Perceiving (47%) students (see Table 5, item 23). Open-ended comments also suggest that EP students do not consider on-line discussions as "real conversations" as illustrated in the following statements: "Can't talk on a computer, I'd rather talk"; "I am much more vocal in class. Writing does not constitute conversation." IJ students appear to be more concerned about the organization of their arguments during discussions, needing time for the development of their inner speech which is more likely to be interrupted in classrooms: "It's easier for me to participate with computers because I can organize my ideas better, something I cannot do in class when people are always talking."

A significant difference (Chi Square = 16.84; *p* = .03) is also found between students taught by both Instructors 3 (65%) and 4 (73%) and those taught by Instructors 1 (33%), 2 (33%) and 5 (25%) (see Table 5, item 23). Similarly, French students (55%) feel more involved during on-line discussions than German students (20%), as well as sixth-semester students (72%) compared with fifth-semester students (41%; Chi Square = 8.29; *p* = .01).

***Table 5***

**Sociability: Summary of Significant Differences**

| Item | Description | Significant Differences | |
|---|---|---|---|
| 19 | Students are interested in what their peers write during computer-based written exchanges. | 100% of female students are. | 92% of male students are. |

| | | | |
|---|---|---|---|
| 23 | Students are more involved in computer-based writing sessions than in the regular class sessions. | 59% of Introvert students are. | 40% of Extrovert students are. |
| | | 63% of Judging students are. | 47% of Perceiving students are. |
| | | 63% of students taught by Instructor 3 and 73% of students taught by Instructor 4 are. | 33% of students taught by Instructor 1, 33% of students taught by Instructor 2, and 25% of students taught by Instructor 5 are. |
| | | 55% of French students are. | 20% of German students are. |
| | | 72% of 6th-semester students are. | 41% of 5th-semester students are. |

A synthesis of open-ended comments reveals that students appreciate the communicative empowerment of on-line discussions organized by Instructors 3 and 4 who gave topics to which students could relate (Instructors 3 and 4 scheduled CMFLC once every two weeks). According to open-ended comments, the on-line discussions organized by Instructor 2 were less appreciated because of peripherals (hardware to be used, e.g., VCR, laser-disc player, in addition to the computer) and highly structured discussions that led to communicative impoverishment (Instructor 2 also scheduled CMFLC once every two weeks). Students with Instructor 1 mention that they used CMFLC only twice in the semester and that for each session, directions about the computer functions were unclear; Instructor 2 was also seen by students as lacking control of those functions, which seemed to have impeded their appreciation of on-line discussions. Students with Instructor 5 (who scheduled CMFLC once every two weeks) note that topics of discussion were not particularly appealing, and that they preferred classroom discussions because they thought that participation in class was graded, perceiving CMFLC as "an informal yet gratuitous add-on."

With regard to differences between fifth- and sixth-semester students (see Table 5, item 23), the best explanation seems to be related to the level of foreign language proficiency: Open-ended comments suggest that sixth-semester students feel they can communicate their ideas easily while fifth-semester students seem more concerned about language accuracy and lack of vocabulary while attempting to get their ideas across. However, these comments are not entirely satisfactory to explain why sixth-semester students feel more social on-line than during face-to-face conversations if we keep in mind that the same arguments can apply to both written and oral production. Unfortunately, interpretive data (i.e., data obtained from open-ended comments in questionnaires) do not provide further enlightenment on this issue.

Overall, 60% of students think that CMFLC has contributed to a better atmosphere during regular classroom sessions (see Appendix 2, item 17). Open-ended comments speak for themselves: "It's easier to get to know other people individually"; "Everybody is more open"; "I think that the *Daedalus* environment is more 'laid back' and that carries over into class"; "I know more names and can approach the other students more easily"; "Knowing something about one's classmates' beliefs contributes toward a friendlier atmosphere"; "It enables us to communicate with one another on a more personal/intimate level than does merely sitting in class." Students who do not think (17%) that CMFLC contributed to a better atmosphere in class feel that "bashing" (more commonly known as "flaming" in the CMC jargon) "can also create tense and resentful exchanges during face-to-face conversations."

## Task Motivation

### *Intrinsic Motivation*

A majority of students (65%) think that CMFLC is more motivating and interesting than written activities done on paper (see Appendices 1 and 2, item 20). None of the independent variables explain why 27% of the students were undecided and why 9% of the students preferred written work to be done on paper. Students' comments suggest that, overall, students marvel at the synergetic quality of computer-mediated communication which reconciles the traditional dichotomy between orality and literacy, an emergent register now described by linguists as "interactive written discourse" (Ferrara, Brunner, and Whittemore 1991; Taylor 1992). Most students in this study appreciate this electronic register, and they perceive it as a step necessary to help them gain confidence in their endeavor to write more formal papers. A majority of students indicates that synchronous on-line discussions are intrinsically motivating (see Appendices 1 and 2, item 37: 83%, item 32:

78%), yet should be used only in good balance with other class activities (see Appendix 2, item 25) in order to address differences of which students themselves are aware, as illustrated in the following statements: "I feel that other students (who may be very self-conscious while speaking) get more involved in class when using *Daedalus*"; "All activities, whether in the computer lab, in class or at home, equally contributed in improving my writing." Interestingly, Feeling students (44%, item 25) like assignments to be done on paper more than Thinking students (23%); and Thinking students (46%, item 25) like CMFLC more than Feeling students (21%; see Table 6 below, item 25). These differences may further explain why 36% of the students do not find CMFLC more motivating than paper-and-pencil assignments (going back to item 20).

### *Extrinsic Motivation*

Overall, only 11% of the students (see Appendix 2, item 31) participated during CMFLC because they thought it would reflect on their final grade. However, while 74% of females disagree with item 31, only 42% of males do, which indicates that males might be more motivated by grades than females (Chi Square = 5.37; $p = .06$). Further analyses indicate that 17% of the students think they would participate more if CMFLC were graded (item 35). Statistically significant differences (Chi Square = 16.39; $p = .01$) exist between NF (Intuitive-Feeling) and ST (Sensing-Thinking) students (see Table 6, item 35): 71% of the NF students and 37% of the ST students disagree with item 35, thus indicating that NF students are more likely to be intrinsically motivated by CMFLC than are ST students who need to be more extrinsically motivated. However, only 4% felt like not going to class when CMFLC was scheduled (see Appendix 2, item 36) although there are significant differences (item 36; Chi Square = 8.16; $p = .01$) between Intuitive and Sensing students (see Table 6, item 36): 95% of the Intuitive students disagreed with item 36 versus 76% of the Sensing students, which further demonstrates the idea that Sensing students need a more extrinsic motivation for CMFLC than Intuitive students. Surprisingly, students were very shy in providing open-ended comments for item 36, and qualitative data is not sufficient to explain why Intuitive students are more intrinsically motivated by CMFLC sessions than Sensing students. In addition to these differences between Intuitive and Sensing students, a statistically significant variance remains between French and German students (Chi Square = 7.20; $p = .02$): 20% of the German students did not feel like going to class during

CMFLC sessions versus only 2% of the French students (see Table 6, item 36). Considering that there is an equal distribution of Sensing and Intuitive students in German and French, the students' cognitive style does not seem to account for the differences observed between foreign languages.

*Table 6*

**Task Motivation: Summary of Significant Differences**

| Item | Description | Significant Differences | |
|---|---|---|---|
| 25 | Students are more motivated by assignments to be done on paper. | 23% of Thinking students agree. | 44% of Feeling students agree. |
| 31 | Students participate in computerized exchanges because it is graded. | 74% of female students disagree. | 42% of male students disagree. |
| 35 | Students would participate more if computerized exchanges were graded. | 71% of NF students disagree. | 37% of ST students disagree. |
| 36 | Students feel like not going to class when computer lab is scheduled. | 95% of Intuitive students disagree. | 76% of Sensing students disagree. |
| | | 2% of French students disagree. | 20% of German students disagree. |
| 34 | Sometimes students feel that class time is wasted in the lab. | 15% of French students feel it is a waste of time. | 40% of German students feel it is a waste of time. |
| 33 | Favor more computer-based sessions. | 73% of Thinking students agree. | 50% of Sensing students agree. |
| | | 88% of students taught by Instructor 3 agree. | 40% of students taught by Instructor 2, and 25% of students taught by Instructor 5, agree. |

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Results obtained for item 34 (see Appendix 2) are somewhat alarming considering that 21% of the students think that CMFLC is a waste of class time. The largest differences appear between French and German students (see table 6, item 34): 40% of the German students feel it is a waste of time versus only 15% of the French students. A synthesis of open-ended comments suggests that a waste of time is perceived under the following conditions:

1) unclear directions for computer functions,
2) off-track discussions,
3) technical manipulations of VCR and TV monitors in addition to controlling computer functions,
4) inability to see the advantage of casual conversations on the computer,
5) lack of interesting topics,
6) not enough flexibility,
7) limitation of participation to one sentence at a time, and
8) too much concern for language accuracy that CMFLC does not explicitly teach.

As a whole, a majority (60%) of students (see Appendix 2, item 33) mentioned that they would like more computer-based sessions in their writing class. Only 15% did not wish more computer sessions. Frequency distributions reveal differences between Feeling and Thinking students: 73% of Thinking students are in favor of more CMFLC sessions versus 50% of Feeling students (see Table 6, item 33). Similarly, there are noteworthy differences between students taught by Instructor 3 and those taught by Instructors 2 and 5: 88% of the students with Instructor 3, 40% of those with Instructor 2, and only 25% of those with Instructor 5 are in favor of more CMFLC sessions in their writing classes (see Table 6, item 33). Students comment that CMFLC sessions are a nice addition to the class, but that they cannot constitute an entire program per se and that they "cannot substitute for regular class time."

## Summary of Underlying Affective Factors While On-line

For the current study, the MBTI test was used for the sole purpose of isolating independent variables. One may rightly object that psychology tests administered in academic institutions are usually kept confidential, and that faculty does not have access to personal data. However, although MBTI cannot be administered on a systematic basis in foreign language classrooms, differences reported in this study on the basis of personality diversity can help faculty to become more observant and thus more sensitive to their students' needs as well as to anticipate difficulties while students are on-line. The following will synthesize differences in attitudinal and motivational factors per personality trait, gender, teaching style, FL program, and level of FL study.

- *Introvert–Extrovert:* Introverts and Extroverts are equally stimulated by on-line discussions, which confirms previous studies that CMC has an equalizing effect on participation and that personalities can be transcended on-line. However, IJ students feel they participate more on-line as compared with classroom discussions. With regard to reading, Introverts feel more anxious than Extroverts by the quantity of messages on the screen. Given that Introverts are stimulated by inner thoughts and that Extroverts are energized by outer events, the Introverts' uneasiness when facing an affluence of incoming messages suggests that cognitive adjustments initiate anxieties, a phenomenon which deserves further research in FL instruction.
- *Sensing–Intuition.* Intuitive students feel more at ease than Sensing students during on-line discussions when many ideas and opinions are shared. Sensing students prefer facts and details, feel less comfortable sharing personal opinions, and are more likely to shift their attention from content to language accuracy, thus more prone to language-related anxiety while on-line. On many occasions, Sensing students mention that they would prefer to participate with a pseudonym so that they could worry less about their language mistakes. This may explain why Sensing students are less intrinsically motivated by CMFLC than Intuitive students.
- *Thinking–Feeling.* A larger percentage of Thinkers than Feelers favor CMFLC. Indeed, Thinkers experiment more with their writing than Feelers while on-line because they appreciate the fact that they can elaborate well-constructed responses without interruption. Feelers miss seeing facial expressions and body language, which leads them to perceive on-line discussions as somewhat impersonal. Meanwhile, Feelers tend to be more sensitive to flaming and therefore seem more prone to communication anxiety on-line than Thinkers. Interestingly, the assumption that a lack of extralinguistic clues leads up to uninhibited behavior in CMC does not seem to apply to everybody's personality.

- *Judgment–Perception.* Judgers in this study appreciate working at their own pace while on-line: it allows them to organize their arguments. IJs mention that they feel more involved during on-line discussions, while EPs tend to feel more involved in classroom discussions. Likewise, EJs do not feel overwhelmed by the flow of messages on the screen, since contributions appear in an orderly fashion, i.e., without the typical interruptions of face-to-face interactions. IPs display more uneasiness with the flow of messages, perhaps because they are more inclined to enter the conversation when reading an idea to which they want to react immediately, a spontaneity that CMC does not allow.
- *Males–Females.* Males tend to feel more overwhelmed than females by the flow of messages received on the screen. However, given that a majority of male students were Introvert, we cannot determine if this anxiety is an effect of gender or interaction type. Results also indicate that male students are somewhat less interested in their peers' ideas than female students while communicating on-line. A preliminary analysis of the linguistic data collected throughout the semester in a French class—the detailed analysis of which will be the object of future research—indicates that male students tend to send longer messages than female students. It may explain why male students felt overwhelmed by the flow of messages that keep accumulating while they write their long messages. Interestingly, there were more Thinkers among male students than among female students, who were more likely to be Feelers. Considering that the Thinkers of this study experimented more with their electronic writing than Feelers, this may also explain why males were writing longer messages. Further research is therefore needed to investigate the effect of both personality and gender in CMFLC.
- *Instructional Context.* Teaching style appears as a factor that generates alarming motivational divergences. The courses with the lowest motivation rates are classes where 1) too many computer peripherals are used, 2) synchronous CMFLC is overly monitored and structured by the instructor, 3) the instructor lacks confidence in using the equipment, 4) network-based exchanges are occasional and not fully integrated into the course, and 5) topics of discussion are not intrinsically motivating. As a result of too much monitoring and structure of synchronous CMFLC, students seem to react to the unnaturalness of what Moran (1991) calls divergent monologues: students display lower

intrinsic and situational motivations within such a conversational format. However, further research is needed to investigate the effect of teaching style, considering that every class has its specific dynamic. For instance, Instructor 2 had more EP students, who tend to prefer oral participation, while Instructor 3 had more IJ students, who tend to prefer on-line discussions. Also, in spite of the fact that students enlightened us with their comments, further research is needed to check the effect of teaching style in a more systemic approach.

- *Level of Study.* Most likely, the proficiency level of foreign language students can have both a positive and a negative effect on participants. A higher proficiency level seems to enhance the students' confidence for expression and exchanges. Yet, an increase in expressive skills while online seems to initiate an increase in reading anxiety, given the subsequent affluence of posted messages. Conversely, students at a lower level of foreign language proficiency seem to be more subject to anxiety related to language production. Considering the newness of this finding, further research is needed in other foreign language programs using electronic discussions to investigate reading anxiety. We should add, however, that personality traits were unequally distributed: 67% of the sixth-semester students were mostly Introverts while only 43% of the fifth-semester students were Introverts. Therefore, are we witnessing an effect of proficiency level, an effect of personality, or both? We could also argue that students become more introverted as they go through college due to the numerous academic activities they perform alone. Similarly, a possible hypothesis is that the on-line situational environment may tend to make learners more "situationally" introverted.
- *Differences between Foreign Languages.* This study showed that, while on-line, French students are more appreciative of their increased ability to share opinions and ideas, while German students are more concerned about language accuracy. As a result German students show a lower level of communicative and linguistic confidence as well as a lower level of situational motivation than French students do while online. Some hypotheses may come to mind:

  1) French and German programs may typically differ in their philosophy with regard to language accuracy;
  2) the differences mentioned in this study between French and

German students may in fact be an effect of teaching style;

3) these differences may be due to a different distribution of personalities. Further research is needed to test these hypotheses.

- *Overall Observations.* An overall synthesis of interpretive data also points to the following:
    1) Students think that CMFLC is a complementary writing tool to be used in good balance with other class activities and assignments;
    2) some students complain that directions for log-on instructions are not always clear;
    3) some students feel pressured by technical manipulation of VCR and TV monitors in addition to controlling computer functions;
    4) some students are unable to see the advantage of casual conversations on the computer; and
    5) others consider off-track discussions a waste of time.

## Conclusion and Recommendations

One should keep in mind that the results of this study must be interpreted with some caution. First, all classes did not have the same quota of respondents, which may have skewed comparisons between instructors' sections as well as between the French and German language programs. It is possible that the low percentage of respondents in classes taught by Instructors 2 and 5 was due to a general unwillingness to share unfavorable opinions. Another possibility would be that only students with a negative attitude decided to volunteer in this study. Whatever the case may be, the high percentage of nonrespondents for Instructors 2 and 5 probably introduced a bias into the sample data. No evidence can be provided to support either hypothesis although one may argue that the consistently high rate of respondents among French students compared with that of German students may actually reflect different degrees of attitude and enthusiasm that may actually speak for themselves. Nevertheless, readers must be aware that this possible bias prevents us from generalizing the present results regarding teaching styles to other populations.

Second, although the survey was checked for comprehensibility, it could not be pilot-tested for reliability due to time constraints and to the fact that *Daedalus Interchange* is a recent technology which was used only in English programs at the time of data collection. Therefore, the survey could not be sent to other foreign language departments. However, in order to compensate for this potential drawback, interpretive data (students' comments) were included for the purpose of refining variables during analysis procedures.

Finally, the MBTI test represents only one measurement of personality type among many others, and readers need to be aware that no single test can reflect the complexity of our students (Sloan, in press): other factors such as social background, majors, or age could be integrated in future research. In spite of these methodological limitations, however, several of the results in this study are significant and noteworthy.

Indeed, the approach adopted for this study shows that interpretations based on global trends are inadequate to establish a pedagogy sensitive to all foreign language learners in CMFLC. One may be tempted to consider technology a panacea for pedagogical problems, especially when statistics overwhelmingly show that most students are motivated by CMFLC. Yet, relying on general trends may blind us to some underlying problems, as demonstrated throughout this article. The following will draw conclusions on the greatest strength observed during CMFLC. However, while reading the next lines, pedagogues must keep in mind that it is not as important to know that there are general assets to CMFLC as it is to understand each and every one of our students in all their differences and diversities whether in regular classrooms or on-line.

## The Greatest Strength of Synchronous CMFLC

In general terms, the results of the survey support the premise that synchronous CMFLC triggers a high level of situational and task motivation as well as a positive attitude among FL students regardless of initial motivations (integrative or instrumental) and computer background. The strongest asset of synchronous CMFLC is certainly the kind of communication it promotes. More specifically, on-line participants find themselves intrinsically and socially motivated by electronic discussions due to the following reasons:

1) students realize that they can be understood and that they can sustain a discussion;
2) they are interested in their peers' ideas and thrilled by the authenticity

of their exchanges;

3) they are in control of the discussion while participating at their own pace and without the pressure of other students waiting for an answer to be completed;
4) they find it attractive to write casually as if passing notes in a class;
5) CMFLC holds interest and concentration time;
6) CMFLC encourages participation from students who do not usually speak in class;
7) CMFLC enhances both computer literacy and foreign language use; and most importantly
8) CMFLC contributes to a better atmosphere in class.

These factors clearly empower students to learn the value of communication in a foreign language. This empowerment contributes most likely to the low anxiety level observed in this study. Considering that verbal participation in front of a class is the most anxiety-producing activity in foreign language instruction (Horwitz and Young 1991), CMFLC proves to be a valuable tool for minimizing communication apprehension. Similarly, keeping in mind that reading stimulates writing and vice versa (Johns 1995), CMFLC is an excellent environment for students to understand the connection between both skills. A 24% increase in students considering FL studies as their major due to CMFLC certainly speaks in favor of this new medium. Needless to say, there is a natural relationship between CMFLC and current foreign language pedagogy that emphasizes authentic communication and negotiation of meaning as the fundamental factors of foreign language development. As Schulz (1991) has pointed out, "To increase learner motivation, there should be an increased emphasis on content, i.e., on worthwhile, thought- and emotion-provoking information and interaction . . ." (p. 175). Clearly this study shows that CMFLC is a social space in which participants can be both "task focused" and "relationship focused." Keeping this essential idea in mind, pedagogical recommendations are necessary to maximize social and task motivation during CMFLC so that students can get the most out of electronic interactions.

## Pedagogical Recommendations

The research presented in this article leads us to recommendations for the purpose of optimizing motivation and attitude in synchronous CMFLC. One very important suggestion is vigilance. Foreign language faculty needs to remain alert to ensure maximum comfort while students are on-line. Keeping this in mind, some of the following pedagogical suggestions may be beneficial in certain foreign language classrooms that include CMFLC.

*Prevention of log-on and initial anxieties:*

- Faculty should get acquainted with log-on procedures ahead of time and make sure that they master them;
- Faculty could also demonstrate log-on procedures the first time on a large screen-projecting device visible to all students;
- Distribute clear log-on instructions on hard copies for students to keep;
- Always come to class with extra copies containing log-on instructions;
- Schedule on-line activities on a regular basis (e.g. once every two weeks);
- Give personal attention and encouragement to students who are shy or nervous at the computer.

*Enhancing Sociability / Prevention of Communication Apprehension:*

- Give students the option to use their real name or a pseudonym, and tell them that they can always change later during the semester;
- Provide students with enough time to keep up with the discussion, especially in large groups;
- Minimize the use of peripheral equipment such as VCR laser-disc players, tape players, etc.;
- Do not structure discussions too closely; instead allow at least some freedom and flexibility to maximize sociability (this, of course, may depend on the pedagogical goals of specific assignments);
- Give students the option to organize subgroup conferences (to prevent reading anxieties);
- Leave writing shorter messages on suggested (not imposed) themes to the discretion of students;
- As part of the course, teach students how to skim and scan for relevant information to prevent reading anxiety while on-line;
- Watch for divergent monologues and encourage convergent dialogues not by means of questions but by expressing genuine interest in what the students write on-line or by synthesizing what students say;

- Identify students who do not appreciate sharing personal opinions in public and give them the option to synthesize what is being said by others during electronic discussions (another technique to maintain convergent dialogues);
- Let off-track discussions take place for a short time (it is a natural part of being social), then gently redirect students to the topic;
- Watch how students react to your short on-line contributions: see if they motivate or inhibit your students' participation (every group has a different dynamic);
- Minimize flaming by increasing indirectly the students' awareness of the matter; group discussions about mutual respect, tolerance, and consideration for others can be organized in class; during group discussions, students could also reflect on communicative strategies that can be used for the maintenance of mutual respect; this could also be the subject of a written assignment; a direct exchange with students who tend to flame would make them feel uncomfortable and is not advisable;
- Give students a list of symbols (e.g., smileys) to use during on-line discussions; students usually think that using such symbols is fun, and their use would partially address the concern of some students who miss extralinguistic clues.

*Enhancing Task Motivation:*

- Organize electronic discussions in advance;
- Ask students at the beginning of the semester what topics they like to talk about with their friends;
- Select topics that are current, universal, or interdisciplinary;
- Discuss topics with students prior to on-line discussions and let them choose what seems most appealing;
- Have students prepare on-line discussions ahead of time by having them read authentic documents related to the topic of discussion (recent magazine articles written in the target language) prior to CMFLC sessions, which will provide them with language input (vocabulary, expression, and facts) that will most likely facilitate expression; this technique may shift attention from language accuracy to content (keeping in mind that Sensing students need facts to support opinions).

- Give students a choice of articles to read rather than imposing one in particular, so that students choose the article that best reflects their interests;
- Have students locate in their reading expressions, vocabulary and facts that they will most likely need in order to explain their own arguments while on-line;
- Encourage students to subscribe to international global area networks to communicate with native speakers; this can make students—who fail to see the relevance of on-line discussions—be aware of the importance of the Internet;
- Organize group studies during regular classroom sessions immediately after each electronic session: students could be asked to edit portions of the transcript in order to develop their language monitoring as well as fulfill their need to work on language accuracy.

*Balancing Intrinsic and Extrinsic Motivation:*

- Announce electronic sessions on the syllabus (and perhaps as part of the participation grade for students who need the incentive of a grade or who think that on-line discussions are a waste of time);
- Avoid grading the quality or the quantity of on-line exchanges (students indicate that they would not like to have this kind of pressure).

*Maximizing Environmental Comfort:*

- Suggest to students who seem disturbed by other people's presence in the laboratory to bring their favorite music on portable equipment during electronic sessions;
- Encourage students to call with questions about language or other issues.

Overall, we need to keep in mind that it is not the medium that counts but the use one makes of it.[1]

## Note

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## Appendix 1: QUESTIONNAIRE

For the following questions, circle only one letter which corresponds to the scale given below. Write additional comments you would like to make in the space provided.

SD = Strongly Disagree D = Disagree N = Neutral
A = Agree SA = Strongly Agree

1. I registered in this language writing class to fulfill the college area requirement .................................... SD D N A SA

   Comments:

2. I registered in this foreign language writing class because it will help me professionally.............................. SD D N A SA

   Comments:

3. I registered in this foreign language writing class because I would like to improve my communication with friends or relatives for whom French or German is their primary language.................................... SD D N A SA

   Comments:

4. I registered in this writing class because I intend to major in French or German.................................... SD D N A SA

   Comments:

5. I already had experience with IBM/IBM clones prior to using the Daedalus writing environment ....................... SD D N A SA

   Comments:

6. I already had experience with Macintosh computers prior to using the Daedalus writing environment.......... SD D N A SA

   Comments:

7. At first I was nervous about using a computer in this class.................................................................... SD D N A SA

   Comments:

8. Prior to taking this computer-based writing class, I felt that going to a computer-lab would be intimidating........................................................ SD D N A SA

Comments:

9. I feel that the William and Mary Computer Language Lab is a comfortable place.......................................... SD D N A SA

Comments:

10. I am worried and nervous when I attend computer sessions in this writing class.............................................. SD D N A SA

Comments:

11. I am more comfortable during computer sessions than when I sit in regular classes.......................................... SD D N A SA

Comments:

12. I am so nervous during computer-based classes that I don't know what to write............................................... SD D N A SA

Comments:

13. I worry because everyone in the class can read my ideas on the screen................................................................. SD D N A SA

Comments:

14. I feel uncomfortable because everybody in the class can see the mistakes in my messages.................................... SD D N A SA

Comments:

15. I feel (or would feel) comfortable signing my messages with my real name during our computer-based written communications ........................................................ SD D N A SA

Comments:

16. I feel that having an "alias" encourages me (or would encourage me) to participate more during our computer-based written exchanges........................................... SD D N A SA

Comments:

17. Writing to my peers using the Daedalus writing environment has contributed to a better atmosphere during non-computer based class sessions.................................. SD D N A SA

Comments:

18. I experiment more with my writing while using Daedalus than when I write assignments to be handed in on paper.................................................................. SD D N A SA

Comments:

19. I am interested in what my peers write during our computer-based written exchanges........................................ SD D N A SA

Comments:

20. Computer-based written communication is more motivating and interesting than written activities to be done on paper...................................................................... SD D N A SA

Comments:

21. Using the Daedalus writing environment has helped me gain confidence in my writing........................................ SD D N A SA

Comments:

22. Using the Daedalus writing environment has helped me improve the quality of my writing skill.......................... SD D N A SA

Comments:

23. I feel more involved in the computer-based writing sessions than in the regular class sessions.......................... SD D N A SA

Comments:

24. I can read and write at my own pace and participate as I want while using the Daedalus Writing Environment................................................................ SD D N A SA

Comments:

25. I am more motivated by assignments to be done on paper........ SD D N A SA

Comments:

26. Using the Daedalus writing environment has not helped me gain confidence in my writing........ SD D N A SA

Comments:

27. Using the Daedalus writing environment has not helped me improve the quality of my writing ........ SD D N A SA

Comments:

28. I am more involved in a regular non-computer-based class than in computer-based sessions ........ SD D N A SA

Comments:

29. I feel I can participate as I want in regular non-computer-based classes........ SD D N A SA

Comments:

30. I feel I am overwhelmed by the flow of messages received on the screen........ SD D N A SA

Comments:

31. I participate during the computer-based written exchanges because it is graded by my professor........ SD D N A SA

Comments:

32. I participate during computer-based written exchanges because the Daedalus writing environment is fun........ SD D N A SA

Comments:

33. I would like more computer-based sessions in this class........ SD D N A SA

Comments:

34. Sometimes I feel that class-time is wasted in the lab ..... SD D N A SA
Comments:

35. I would participate more if I were graded during my computer-based written exchange................................ SD D N A SA
Comments:

36. I feel like not going to class when computer lab is scheduled ...................................................................... SD D N A SA
Comments:

37. I look forward to computer-sessions in this class........... SD D N A SA
Comments:

38. I feel that communicating via computers has increased my interest in continuing foreign language study.......................................................................... SD D N A SA
Comments:

39. I feel that written communication via computers has been a disappointing experience.................................... SD D N A SA
Comments:

40. I feel that communicating via computers has been a positive experience........................................................ SD D N A SA
Comments:

41. Overall, I feel that the use of computers in this class has helped me in reaching my personal goals........................ SD D N A SA
Comments:

42. What do you feel are the greatest strengths of using computers in your writing class?

43. What suggestions would you make to improve the use of computers in a future writing class?

## Appendix 2: Frequency Distributions per Answer

| Question # | Strongly disagree/ disagree | Neutral | Strongly Agree/ Agree |
|---|---|---|---|
| 1 | 84% | 1% | 15% |
| 2 | 33% | 20% | 47% |
| 3 | 49% | 19% | 32% |
| 4 | 61% | 5% | 34% |
| 5 | 41% | 5% | 54% |
| 6 | 41% | 3% | 56% |
| 7 | 65% | 2% | 33% |
| 8 | 77% | 8% | 15% |
| 9 | 5% | 6% | 89% |
| 10 | 87% | 6% | 7% |
| 11 | 31% | 31% | 38% |
| 12 | 98% | 2% | 0% |
| 13 | 71% | 12% | 17% |
| 14 | 70% | 11% | 19% |
| 15 | 8% | 20% | 72% |
| 16 | 42% | 28% | 30% |
| 17 | 14% | 15% | 71% |
| 18 | 53% | 14% | 33% |
| 19 | 0% | 1% | 99% |
| 20 | 9% | 27% | 64% |
| 21 | 25% | 41% | 34% |
| 22 | 30% | 44% | 26% |
| 23 | 23% | 26% | 51% |
| 24 | 8% | 11% | 81% |
| 25 | 31% | 39% | 30% |
| 26 | 50% | 26% | 24% |
| 27 | 44% | 30% | 26% |

| | | | |
|---|---|---|---|
| 28 | 54% | 30% | 16% |
| 29 | 17% | 6% | 77% |
| 30 | 56% | 15% | 29% |
| 31 | 67% | 22% | 11% |
| 32 | 8% | 14% | 78% |
| 33 | 15% | 25% | 60% |
| 34 | 70% | 9% | 21% |
| 35 | 58% | 25% | 17% |
| 36 | 91% | 5% | 4% |
| 37 | 3% | 17% | 80% |
| 38 | 33% | 42% | 25% |
| 39 | 88% | 9% | 3% |
| 40 | 3% | 14% | 83% |
| 41 | 20% | 39% | 41% |

# Cognition, Context, and Computers: Factors in Effective Foreign Language Learning

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## Introduction

While the dilemma of how students learn and what teachers can do to facilitate the learning process arises in all disciplines, it is especially crucial and complex in the case of foreign or second languages. Confronted by new subject matter in their native language, college students approach the material using a code—their native language—that they have already mastered, to varying degrees. When learning a second or foreign language, they must simultaneously learn a completely new code and new subject matter. This is a daunting task for teachers and students alike: in this era of communication-based, proficiency-oriented language courses, learning a foreign language is more than memorizing vocabulary and structures and repeating sounds.

The question is, now that computers exist, can they—or rather, *how* can they—facilitate foreign language learning? It has become almost commonplace to say that presenting material in context helps students to understand and remember meaning and structures in the new foreign language they are studying. The goal of this article is to show that context makes an essential contribution to cognition and that the computer provides more of a context for the foreign language than was previously possible. To support this claim, an explanation of cognition and memory will be presented, followed by a taxonomy of context, concluding with a description of the role of the computer.

## Cognition

In a recent textbook on cognitive science, Stillings states that cognition "refers to perceiving and knowing." The author writes that cognitive scientists seek to understand "perceiving, thinking, remembering, understanding language, learning, and other mental phenomena," all of which are related to learning a foreign language, and that the research of cognitive science includes "studying the principles of neural circuitry in the brain" (Stillings 1995, p.1). Starting in the mid-nineteenth century, through study of aphasics, or people with language disorders caused by accidents or strokes, doctors and scientists discovered areas of the brain associated with various speech functions and drew brain "maps" listing functions such as motor control of voluntary muscles (Frontal Lobe), memory of visual and auditory patterns (Temporal Lobe), and visual capabilities (Occipital Lobe). During the last twenty years, technological advances have allowed researchers to use sensitive computer equipment to document brain activity much more precisely on normal subjects, revealing the areas of the brain involved in specific activities. The new technology allows neuroscientists to "see inside the human brain . . . to study how the human mind is organized" (Blakeslee 1993, p. C1). Ongoing research, in turn, allows the periodic redrawing of more detailed brain "maps" which increase our understanding of the brain's functions. Recent research has established a relationship between the physical brain and functions that previously were not only excluded from, but were also considered in opposition to the concept of "mind"—all of which was grouped in the category of mental activity or cognition.

The attitude toward cognition, or at least to "mind," is changing to include emotions as well as thinking. Goleman, in a book entitled *Emotional Intelligence*, claims that we have two minds, "one that thinks and one that feels" which, although they are "two fundamentally different ways of knowing[,] interact to construct our mental life" (1995b, p. 8). According to research reported by Goleman, likes and dislikes are created as perception occurs. In a study investigating preconscious reactions before the individual reaches a state of awareness, tests indicated that English speakers find the word "juvalamu" intensely pleasing and "bargulum" moderately pleasing, but loathe the word "chakaka" (Goleman 1995a). The article mentions the phenomenon of "emotional memory," implying that a new word takes on an emotional value that is forever associated with it.

The possibility that the separation between what was formerly called cognitive and the affective may not exist is also discussed by Winograd and Flores, who question the assumptions of the rationalistic tradition that thinking, as expressed by "sentences and representations, concepts and ideas . . . can serve as a basis for understanding the full range of what we might call 'cognition'." Based on the writing of Heidegger and Maturana, they suggest that cognition is not just an activity in a mental realm but is a "pattern of behavior that is relevant to the functioning of the person or organism in its world" (1987, p. 71).

In a recent article ("Cognition Plus: Correlates of Language Learning Success"), more closely related to language learning, the authors report on the effect on an individual's ability to learn a foreign language of a number of variables: aptitude, age, sex, motivation, anxiety, self-esteem, tolerance of ambiguity and risk-taking, language learning strategies, language learning styles (Ehrman and Oxford 1995). Although cognitive aptitude was found to have the highest correlation to success in language learning, they found that affective factors and personality variables are also important. These results suggest that the atmosphere of the classroom and the teacher-student relationship are important learning parameters that are sometimes ignored on the college level.

While native language learning is complicated by the simultaneous learning of concepts (already possessed by adult second language learners), the sensory aspects may be more significant in adult second language acquisition. Philosophers and psychologists, reacting to the behaviorism of the 1930–1970 period, are fond of pointing out that: "Humans are characterized not only by sensory, but also by *rational* cognition" (Luria 1982, p. 18). That is, speech production and comprehension are physical and emotional as well as mental activities, or rather the physical, emotional, and mental activities of language—when language is considered as communication—cannot be separated.

## Memory

The preceding discussion of cognition has suggested the complexity and the multiplicity of factors involved in the process of learning a foreign language but has not touched on one aspect of cognition mentioned in our original definition and without which learning is impossible: *remembering*. Traditionally, it was thought that there was a single area in the brain where information was stored, but the current dominant theory is that memory involves the entire brain and is a process, as well as information.

Remembering involves both retention and recall. There is not yet any consensus on how these occur, but the numerous ways of interpreting memory proposed by psychologists and cognitive scientists all involve processes of one kind or another. For Piaget, "memory involves an active *construction* at the time of exposure and an equally active reconstruction at the time of recall" (Phillips 1981, p. 22). According to Piaget, there are two kinds of memory: images, or recall of a scene, for example; and "conservation of schemes" which refers to the operative aspect of memory (Philips 1981, p. 24). Johnson-Laird differentiates between permanent and long-term memory: permanent memory is for essential skills, while long-term memory is for experiences and knowledge (1988, p. 156). Anderson divides memory into declarative and procedural memory, the former covering facts and events and the latter for enactment of rule-governed behavior (1983, p. 19). In this case, the lesson for the teacher may be that procedures for reinforcement of skills (i.e., sentence formation) may be different from those that reinforce declarative memory (i.e., vocabulary and culture). Gardner suggests that it may be impossible to generalize about memory because retaining and retrieving may work differently depending on the memory type, e.g., visual, spatial, or verbal (1987, pp. 131–134).

Experiments have shown that "the memorizing of a meaningful text presupposes its analysis, its deconstruction into 'meaningful supports,' and that, in essence, retention implies its processing (and the further reconstitution of that meaning rather than its mere reproduction) . . . at the basis of memory there lie processes of reiterative stimulation of closed circuits of neurons" (Leontiev 1981, pp. 49–51). "Stimulation" is key because memories must be activated.

According to Johnson-Laird, remembering is a five-step process. The brain must: 1) register the fact, rule, experience, or event and make a decision as to whether it is worth remembering; 2) lay "down a representation of the experience;" 3) maintain "the memory, perhaps for a long period of time;" 4) retrieve the memory rapidly and efficiently, either deliberately (when you must remember something) or spontaneously (when all of a sudden you think of a past event); 5) retain "the retrieved memory for a short time in consciousness while it contributes to thought" (Johnson-Laird 88, p. 143). One notes in the second step that one keeps a "representation" of what it is one wants to remember; it does not say that specific information is stored. A remembered fact or action is the result of a process consisting of the dynamic fusion of the several components of the retained representation. The role of the teacher in this process is to: 1) inspire students to think the item is worth remembering; and 2) provide enough input so that the representation can be as rich as possible. Here, also, one notes again the importance of stimulation, mentioned above.

What are the mechanisms that allow remembering to occur? When neuropsychologists talk about the brain, they use words such as neurons, axons, and synapses. Cognitive psychologists are more apt to discuss memory in terms of schema, a set of interrelated concepts that correspond to an individual's experience. "Whereas a concept can be viewed as a single unit of information, a schema may be described as an interconnected set of propositions or elements; a schema is a more holistic segment of knowledge" (Goldstein 1994). For example, "a restaurant . . . specifies the behaviors required for restaurants, cafeterias, and fast-food outlets" (Glass and Holyoak 1984, p. 88). The concepts, on which schemata—plural of schema—are based, can be imagined as composed of nodes and associations; a node is a concept linked to an association. For example, if the word "waiter" is the node, it is linked with various associations, such as the written representation of the word in one or more languages, the sound of the word in one or more languages, what a waiter looks like, and what he does. Groups of nodes linked together form a schema or a script. The previous example of a node, "waiter," fits into a schema of "restaurant" along with other nodes such as waitress, menu, table, ordering, and tip. Therefore, regardless of the system or terms used to describe the workings or structure of memory, the definitions almost always refer to making connections.

## Context

The discussion of cognition and memory suggests that retention and retrieval of information and procedures occur because of multiple stimuli. These stimuli of different types and strengths arise from various contexts without which remembering would be virtually impossible. In fact, it is difficult to overemphasize the importance of context in foreign language learning, and in learning, in general.

Considering foreign language learning in a classroom setting, one can analyze context on six levels. The first three of these relate to the subject matter, and the other three to the learner. The six levels are the following:

1) the lexical-semantic context in which words are presented;
2) the context of discourse;
3) the cultural context of an utterance or a text, with regard to the target culture;
4) each student's personal context—personality and background—which

determines his or her reactions and relationship to the material and the classroom situation;

5) the expectations that both students and teachers have for the learning context; and

6) the classroom atmosphere.

All of these contexts are directly related to what is done in the classroom. Each context will be discussed, keeping in mind the advantages of creating connections for understanding and memory retention.

1. *Words in context.* Some teachers still have a tendency to think of language learning as a simple task: memorize the vocabulary and the structures and repeat the sounds. Those teachers often present vocabulary in uncategorized word lists, structures as grammatical explanations, and both of them in groups of unrelated sentences. They adopt the Augustinian notion of the meaning of a word as the object for which it stands. As Wittgenstein has said, this notion "does describe a system of communication; only not everything that we call language is in this system" (Bialystok and Hakuta 1994, p. 161). Until the 1980s, most foreign language teaching had followed the Augustinian notion, presenting lists of vocabulary with non-contextualized one-to-one native language equivalencies. If words are to be remembered, however, they must be presented in a meaningful context.[1] For Winograd and Flores, objective definitions of words are like those in mathematical texts or legal documents but do not account for "the normal use of language"(1987, pp. 112–113). In order to engage in an exchange of meaning, knowledge of background and context, or "pre-understanding," is necessary. It follows that all utterances should also be meaningful, which requires that they be contextualized in coherent conversations or activities that in turn fit into an overall framework having a significance understood by students.

   On a practical, classroom level, words should be presented in both a syntactic and semantic context in order to become meaningful to students. Meanings will be remembered much more effectively if they are presented with a visual stimulus or in semantic groupings and models illustrating use of the words in an appropriate target language construction (Cohen 1990; Glass and Holyoak 1986; Carrell 1988). More and more frequently, textbooks illustrate concrete vocabulary—for example, the rooms in a house or furniture in a home—in such a way that students will be able immediately to associate an image with a new word. Presenting verbs in a syntactic semantic context facilitates production along with understanding and retention. For example, the English verb "to bear" in the sense of taking a certain direction might be hard to learn if presented as an arbitrary term in an arbitrary list; how is it distinguished from "to turn" and in what tense should it be used? You can say, "I turned right," but is this meaning of "to bear" used in the past tense? Presenting the verb in a conversation about giving directions, accompanied by a line drawing, gives a concrete situation in which the verb is appropriate and provides a memory link for both meaning and usage.

2. *Discourse context.* This term refers to the use of words in sentences and situations corresponding to target culture language use. However, the context that teachers establish for the language that they use in the classroom often bears no relationship to the context in which the language is actually used. For example, usually when you use the question-word "where," you are seeking vital information. But when the teacher, in a lesson on question words, asks students, "Where is the pencil?" and the pencil is in clear sight on his or her desk, the question becomes a non-question. While it does give the students an idea of the meaning of the word, i.e., identification of a location, it does not give them any substantial memory hook and does not give them an idea of how "where" questions are actually used by native speakers (Bialystok and Hakuta 1994, pp. 161–162). As speech act theory tells us, language is used for purposes, and these purposes exist in the classroom; if the target language is used instrumentally to express them, it will be learned by the students. As opposed to the "where" non-question presented above, students can ask real questions using "where" to request critical information, such as where they should meet to do group work outside of class. With the question word "when," instead of asking the quasi-rhetorical or nonsense question, "When does the sun shine, in the morning or at night?" they can ask when a test will be given or when homework is due. These questions involve simple structures that students learn at the beginning of the first year of language study and, if asked and answered in the target language, question forms will be learned very quickly.

3. *Target culture context.* Words and expressions denoting concrete objects should be presented to students in the context that they would have in the target culture. An example of what happens when this is not done, is to imagine giving American students the sentence, *Il a pris le pain, il l'a mis sous le bras, et il est sorti de la boulangerie* (He took the bread, put it under his arm, and left the bakery), without any explanation of its cultural connotation. If you are an American teenager who has seen nothing but Wonder Bread, what kind of sense do you make of this sentence? Can you imagine someone walking around with a loaf of Wonder Bread under his or her arm? Knowing the generic definition of a word is often not sufficient for comprehension of its significance in the target culture.

   With regard to abstract concepts, the cultural context can be viewed externally or internally. The external viewpoint attempts a certain objectivity: an event, custom, or place is explained in full as if describing an image. The internal perspective concentrates on the meaning of the cultural phenomenon to those associated with it. For example, you can say that the French baccalaureate exam is the culmination of a certain type of secondary school education in France, but this explanation does not express the social and economic significance of the experience that is automatically felt by any native speaker. This interpretation of culture is based on shared knowledge: ". . . cognitive anthropology . . . has come to stand for a new view of culture as shared knowledge—not a people's customs and artifacts and oral traditions, but what they must know in order to see as they do, make the things they make, and interpret their experience in the distinctive way they do."[2] Helping the students to understand the appropriate context with regard to the target culture will help to promote meaningful learning. Conversely, without the relevant target culture background information, students will not grasp the meaning of texts or the vocabulary and idiomatic expressions. For example, when presented with the following sentence with words missing—"He put in ________ and pulled out __________ and said ________.—most Americans would think of the nursery rhyme "Little Jack Horner" while a non-American, not having this cultural reference, would fill the blanks with anything logical, such as: "He put in his credit card and pulled out the money and said "Thank God for ATM's."

4. *Personal context.* No matter how well the cultural context is presented to students, they will not fully appreciate it unless they can fit it into their own personal context. Dunn, in an article entitled, "If we can't contextualize it, should we teach it?," presents the constructivist idea that an individual's experiences are embedded in his or her personality, and that all reality is individually constructed (Dunn 1994, p. 84). The individual's experiences include psychological and real-life experience, cultural background, awareness of non-similar cultures (even if not the target culture), and exposure to certain modes of thinking or discourse. Students from homogeneous environments may have more difficulty relating to aspects of the target culture, whereas those who come from or live near ethnically diverse communities may have less difficulty understanding new concepts and practices. A very basic example of this is a student from a rural area attending an urban university who was at a loss when he was supposed to talk about the type of cuisine he liked; he claimed to have eaten only American or German cooking and had difficulty understanding the concept of appreciation of a variety of ethnic cuisines.

   Personal context includes an individual's personal beliefs that may correspond to or differ from those of the social group. People hold beliefs that may be "part of [their] sense of self and sense of place, cherished and held dear in spite of changes in the world's fashions and, if ever abandoned, set aside only with reluctance and a sense of lost comfort." Personal beliefs can prevent a student from adapting to a new classroom context or from absorbing input from the teacher or materials. A student with strong religious beliefs might find it difficult to learn from a text that had an anti-religious bias. A conflict between course materials and personal context can impede learning in any discipline, but the effect is intensified in foreign language study. At the early stages of foreign language-learning when college students do not have the linguistic preparation to express their thoughts which, intellectually, may be quite sophisticated, controversial documents while apparently stimulating discussion may actually be counterproductive.

   "Social representation," the individual's relationship to a social group and the roles he or she assigns to others, is another aspect of personal context. According to Goodnow and Warton, "Social representations are commonsense theories about aspects of the world . . . and are strongly influenced by one's social position" (1992, pp. 164–165).

Years ago, American children formed their concept of a police officer by learning a song in elementary school that began, "Go up to a kind policeman;" this image of the policeman as a kindly, father-like figure whom a child can trust probably does not correspond to most contemporary inner-city children's impression of law enforcement personnel, whom they more often see as the "enemy."

Another example of the relationship between personal context and social representation is students' perceptions of the role and place of their instructors. The way students view teaching fellows or part-time instructors—often the deliverers of language instruction, especially in large universities—depends on the students' own ideas about teachers and, at the same time, on the instructors' ideas about their role. Students who have been taught to respect teachers and not question their authority (admittedly a smaller and smaller number) will have a tendency to make no distinction between a teaching fellow and a professor. Other, especially older, students may question the authority of a younger instructor regardless of rank (i.e., even if he or she is an assistant or associate professor). On the other hand, instructors may use dress as a visual means of controlling distance, never wearing jeans and wearing a jacket as a means for younger instructors to establish authority or dressing more casually, in the case of older professors, to encourage a more relaxed atmosphere. Here, the individual's idea of social representation is iconic, associated with what the person playing a role should look like, rather than with a social position or a set of functions. Social representations also encompass ideas about ethnic and racial groups and are particularly important in foreign language courses where students' attitudes toward non-English speakers and their cultures can influence their feelings about foreign languages in general and their interest in specific languages and cultures.

The individual's perception of him or herself and of society affects student-teacher and student-student interactions. Some teachers, recognizing the importance of understanding students' perceptions, make an effort to know them individually, holding short, individual interviews with each one at the beginning of each semester. Knowing something about students—to use the current familiar expression, knowing "where they're coming from"—makes it easier to establish contexts that will facilitate their learning. Teachers can capitalize on the students' own personal experience to allow them to relate new information to already stored information in order to reinforce retention.

5. *The context of expectations.* Although we may not always verbalize our expectations, we approach our life situations with a preconceived idea of the attitudes and actions of the various players. There are unwritten rules of discourse for what the interlocutors understand is expected of them in a given conversation. Cultural conventions govern the interaction in situations in which an interchange takes place and, in this context, the adjective "cultural" refers more to microculture than to macroculture. That is, rather than being determined by national or macroculture, interaction occurs between individuals in the framework of a variety of subgroups (microcultures) which may have different cultural practices and even different underlying values.

   This variation is evident when one considers the student-teacher relationship and the students' ideas of how teaching and learning take place. Both students and teachers have expectations about how the other should act. Some students come from high schools where they were expected to be passive, while others were expected to contribute to discussions and were rewarded accordingly. As for teachers, many conceive of their role as an authoritative font of knowledge, while others attempt to be facilitators of learning. If they are teaching in a different country, it is evident that their teaching style may not correspond to what the students expect from a teacher. Likewise, teachers from another culture may expect students to know what students in their own country know and not pay attention to aspects of education that are important in the country in which they are teaching.

   Students often have a preconceived idea of how learning should take place and will judge a course on these expectations rather than on whether or not they have actually learned something in the course. Even if their language skills improve, students who are used to a teacher-centered classroom may be dissatisfied in courses in which student participation is emphasized, or they may want more explicit error correction than the teacher thinks should be given (McCargar 1993).

   Expectations can also influence grades. In discussing the effect of context on cognition, Light and Butterworth write that ". . . children's success in tests of logical reasoning depends much more on their awareness of a set of cultural conventions for interpreting a task and communicating an answer than on any ability to handle abstraction" (Mercer 1992, p. 33). In the same way, students who expect that rewards (i.e., good grades) are given for repeating what is said in class will have difficulty adapting to an academic situation in which they are expected to analyze and interpret texts and information.

6. *The classroom atmosphere.* What happens in the classroom is perceived by each student individually based on the aspects of context just discussed, personal context, and the context of expectations. There is, however, a classroom context, environment or atmosphere independent of the individual, which affects learning. The environment of the classroom depends on the teacher, the setting, materials, and group dynamics. It includes the physical conditions (i.e., movable chairs, windows, air conditioning/heat, decoration); length of time of class period (the academic framework); the other students; the syllabus and the texts (set before the course begins); and type of testing. The teacher is, at the same time, part of the environment and the creator of the environment. The teacher sets up an expressive (or emotional) environment that will inspire students to communicate with each other or to retreat into their own shells.

It is not always possible to separate the linguistic, cultural, mental, and environmental contexts mentioned above. In an article on context and cognition, Mercer writes that "Pupils accomplish educational activities by using what they know to make sense of what they are asked to do" (1992, pp. 31–32). He adds: "The success of the process of teaching and learning depends on teachers and learners using talk and other joint activity to build a *shared contextual framework* which will support future joint educational enterprises" (p. 32, italics added). Here, the author is talking more about the context of the classroom with regard to children understanding what is expected of them. His main focus is on disadvantaged or bilingual children who may not understand references made by the teacher, or who have no prior experience to relate to topics of conversation or classroom tasks (e.g., discussion of family trips if children come from low income single parent families). A clear parallel exists, however, with college classrooms, foreign language or otherwise, in which students are asked to participate in activities for which they have no corresponding script. According to Newton, "novel things are understood in terms of things already understood" (1996, p. 152), but our students do not already understand the "other things." We often ask students questions, assuming that they possess the same background knowledge that we do—in foreign languages with regard to the target culture, in literature with regard to understanding of genre or parallel texts, in history with regard to historical awareness—and are disappointed by the blank stares or a few inappropriate answers. One possible explanation for this situation is that, in Mercer's terms, students cannot make sense of what they are to do because they do not share our framework of previous study of the field or experience with the target culture.

## Computers

Computers are relevant to language learning, for when used appropriately, they can provide the meaningful contexts or the background information that students need to understand the full cultural meaning of the foreign language they are learning. Computers allow context to be integrated into learning in a way that corresponds to cognitive processes; they allow for immediate access to information that makes context make sense.

The preceding discussion of cognition has pointed out the multisensory and affective nature of language learning, the related experiences necessary for creating and accessing memory, and the importance of contextualization in all of its various meanings with regard to foreign language teaching and learning. With language learning as a goal, the teacher's challenge is to teach to enhance cognition, adding to the students' store of available contexts while using their existing schemata to foster comprehension, retention, retrieval, and recall. That is, we want to broaden students' horizons and increase their knowledge base, reinforcing existing connections while establishing new links and networks of the type mentioned in our discussion of schemata. We also want students to develop their own personal meanings and schemata, which they can do only if they become more involved with their learning.[3]

Although there have always been resourceful, enthusiastic, energetic teachers who have inspired their students and provided them with meaningful learning experiences using nothing but paper, pencil, blackboard, and chalk, today computers and new multimedia technology—such as interactive videodiscs, CD-ROM, the Internet and the World Wide Web[4]—can offer a way of learning that corresponds to cognition, which was not previously possible. Three dimensions that the computer and new technologies add to the learning environment that did not exist previously, or existed in only the most exceptional cases, are:

1) exposing students to larger quantities of text, images, and authentic materials;
2) increasing time on task in an efficient way; and
3) allowing students to assume responsibility for their own learning.

We can break these dimensions down into features that can be shown to provide context and aid memory and cognition whether the computer is used in the tutorial (directed) or the exploratory ("browsing") mode, as follows:

- The computer is *multisensory* and can display text and project digitized images and sound simultaneously to offer a "binding" experience linking meaning to form (Terrell 1986, p. 214). As students simultaneously read a printed word or expression in the foreign language, hear it spoken (digitized sound), and see it in an image or acted out (digitized visuals and motion video), the schemata necessary for understanding and remembering form in their minds. The multisensory computer can do what cannot be done on a printed page in the case of idiomatic or conversational expressions, since the situations in which these expressions are used and the significance of nonverbal communication can be presented to students in a dynamic way. The computer can draw attention to the dynamics of communication, such as timing and intonation. According to Nakita Newton, thought is based on mental images, which are not only visual. She states that "images are activated traces of sensory experiences, they can occur in any modality" (1996, pp. 145–148). It is precisely because the computer presents materials in more than one modality that it can provide students with richer mental images to support language learning.
- The computer can be programmed[5] to allow users to *control* both the conditions of viewing and what is viewed. In other words, with specially designed computer programs learners can tailor information and tasks to their own level and adapt material to their individual interests. While using tutorial software (which gives explanations, provides practice, and offers feedback), students can study whatever they want for as long as they want, working on all aspects of the language until mastery. With both interactive videodiscs and digitized video (on a hard disk or a CD-ROM), motion video can be controlled so that students can easily find exact locations for reviewing sequences and simultaneously obtain transcripts and explanations that facilitate comprehension. Although video tape can theoretically provide the multimodal material necessary to form mental images, as mentioned above, it is often not transformed into a personal experience, because students cannot apprehend it—the VCR keeps playing and the salient details that could form a mental image are not perceived by students. The computer allows students to control the video to an extent not possible

with a VCR: they can start it and stop it at will, access glosses or not, or take advantage of other aids.

While aids are available in hard copy workbooks, the key to the advantage of the computer is that students can make the decision as to the amount of help they need and when they need it. This is one way in which they take responsibility for their own learning. When using non-tutorial or exploratory software students direct their own learning (much as when doing research in a library), building associations and schemata as they follow their interests and seek out information.

- The computer is *multidimensional* and extensible. The exponential increase in computer storage capacity and the advances in networking technology have made it possible to access more material in more ways. With "hypertext," the computer technique that allows the creation and representation of links between discrete pieces of data, teachers can transform opaque texts into transparent readings for students. Different from the glosses that have always appeared on the printed page, hypertext references are not limited by physical space and can be presented in non-text form as either visuals, motion video, or sound. At the same time, the computer can present material in a non-linear format so that students can establish relationships among parts of a work, discover analogies, and test theories. Users can see different parts of a text simultaneously, or view text along with video or images simultaneously. Here, rather than insisting on the multisensory aspect of the computer—that more than one sense can be stimulated—the emphasis is on the multiplicity of stimuli. That is, the user can see more than one example or manifestation of the same or different material at the same time, comparing and contrasting, establishing relationships and hierarchies. In well-constructed computer materials students can access computer aids at will, according to their own personal learning styles. Depending on whether they are left- or right-brained, analytic or global, they can use on-line glosses, images, video as desired. Thus, with a computer students can fit the material to be learned into a context to which they can relate.
- The computer serves as a tool for *authentic communication* and as a resource for authentic *culture* via the Internet and the World Wide Web. (See, for example, the articles in this AAUSC volume by Kern or by Bernhardt and Kamil.) Much has been written about the computer's capacity to provide experiences in virtual reality, duplicating all of

the sensory stimuli of a given situation, but doing this can be costly and cumbersome (as in virtual reality machines which require users to wear special gloves or goggles) and, regardless of what is done, the experiences remain "virtual," that is, artificial. On the other hand, thanks to the Internet, students can engage in electronic mail conversations with native speakers, using the new form of discourse midway between spoken and written language. On the Web, learners in schools and universities and those who are studying independently have access to information produced by individuals, cultural institutions, businesses, and governments for an audience in their own countries, disseminating a wealth of information that is, like the e-mail exchanges already mentioned, intrinsically authentic and natural. By familiarizing themselves with this authentic material, learners can gradually construct their own contexts. This is an incremental process, with each acquired context facilitating comprehension of all new information.

- The computer, an inherently active medium, offers students an *interactive* learning experience. While it is true that reading and listening are not "passive" skills, as was previously thought, because they involve interpretation by the reader or listener, it is possible to read without thinking and to listen without hearing. In contrast, when using a good computer program, whether educational or general, the user must make choices or give some sort of input for the computer activity to proceed; that is, the user must think and must act. The learner, knowing that the computer will require an action on his or her part, must pay attention, which is one of the basic criteria for learning. (See, for example, the articles in this volume by Beauvois, Kern, and Scott.) Research on hearing perception has shown that unattended input is not processed cognitively and does not enter into memory (Glass and Holyoak 1984, pp. 66–67). Audio tape or video tape are certainly improvements over exclusively print-based language instruction, but students can still "tune out," whereas computer-based instruction requires active attention which, according to Vygotsky, "is a correlate of the structure of what is perceived and remembered" (Vygotsky [1934] 1986, p. 169).

  The inherent interactivity of the computer also enhances learning because the reaction of the computer to the student's action allows learning to continue by providing information or evaluation, whether in the browsing or tutorial mode. Most important, the interactive nature of the computer allows it to be used independently of the teacher, increasing exposure to subject material in addition to class hours, providing meaningful feedback which prevents error-laden learning and corrects misconceptions (depending, of course, on the quality of the software), and offering the possibility of learning outside of the traditional classroom setting.[6] This advantage of the computer, which has been cited since the inception of computer-based learning, should be mentioned because of its importance in decreasing anxiety and adapting the parameters of the learning situation, such as length of time and frequency, to students' learning styles. (For a further discussion on personality and motivational factors, see the article by Meunier in this volume.)

## Practical Applications

Even a cursory glance at journals devoted to foreign language teaching and learning reveals that, at the end of the 1990s, the use of computer materials has become, if not ubiquitous, nearly commonplace. As opposed to early efforts to use computer-based instruction for non-contextualized pattern-practice drills, an increasing proportion of the available software takes advantage of the potential of the computer to promote cognitive processes and to enrich context. Publishers are becoming more active in this area, while individual instructors are becoming more informed, sophisticated consumers. A certain number are learning to use authoring systems[7] and the Internet to create customized software for their students, and many have integrated the use of the Web into their courses. In survey results reported on the Internet, Carolyn Fidelman found an increase of 300% in Web use from 1994 to 1995.

Many culturally authentic, multisensory, multidimensional, and flexible foreign language computer materials could be cited, all of which contextualize information allowing students to make the associations necessary for retention and learning. While there are many ways of classifying software, for the purposes of this article examples will be presented in two categories. The first consists of prepared software packages, immutable and used "as is," which provide context and virtual experiences. In the second category, the Internet and the World Wide Web offer dynamic, temporally evolving real time exposure to language in which students find opportunities for negotiation of meaning and contact with cultural authenticity. The cognitive relevance of this second category is reinforced by its close relationship with students' personal context: This generation is at ease with computers, e-mail, and Web-browsing, so using the Web or e-mail for learning a foreign language takes place in a real-life context similar to other student and leisure activities. In both categories the contexts can be both linguistic and cultural, that is, they may reinforce use of the foreign language in an appropriate pattern or foster understanding of the importance of a document in the target culture. The following are suggestions for computer use and examples of computer materials currently in use in French courses, illustrating the use of the computer to enhance context.[8]

- *Category I:* Virtual experiences through multimedia stand-alone software (CD-ROMs, locally distributed packages). In all of these examples, sound and text are associated with a visual context, forming a schema of the type described above. They all require that students manipulate the data or at least navigate, ensuring attention to and involvement with the context.
- Vocabulary is presented thematically with students reading the printed French definition of a word, hearing the word pronounced, viewing a corresponding digitized image, and having the option of seeing and hearing the word used in a short conversation.
- In the interactive videodisc, *À la rencontre de Philippe*, students control the unfolding of a narrative by making decisions at key points in the story, based on their understanding of the conversations and on their preferences.
- Another interactive videodisc, *Dialogues: Les Français parlent d'eux-mêmes*, allows students to simulate the role of the roving reporter by finding out how a variety of native French speakers, from France and francophone countries, answer questions about their personal values. The software provides an extensive system of linguistic and cultural glosses, thus explaining the context to students.
- A map of Paris has a selected number of sites on which students can click to see a video and hear an explanation, as they would on a guided visit.
- Digitized film clips are presented with cultural and linguistic glosses.

- *Category II:* Authentic materials from target culture Web sites and authentic communication via the Internet or e-mail.
- The World Wide Web is like an "open sesame" into previously distant cultures for the majority of students who were not bilingual or had not had the opportunity to live, travel, or study abroad. Accessing authentic sites (i.e., created for French or German people, for example, rather than for students), now possible via the Web, gives students a target culture context for learning the target language. They can find materials created in another country for its own citizens, which are truly authentic and usually up-to-date. Web activities can provide context in the form of general cultural information, current events, and everyday life in a target language country. Examples of some such activities are:

  1) In the *chasse au trésor* (treasure hunt) students are given a list of Web sites among which they must search for specific items of information. This is done in a computer classroom, and the first group of students to find all of the items is the winner.

  2) In another activity, *L'agence de voyages* (The Travel Agency), students choose a region of France or a francophone country and search the Web for information that they can present to other students who play the role of prospective tourists.

  3) Students access the Web sites of newspapers or magazines and, in some cases, radio stations (only extremely short clips can be used at present because of technical limitations) to find out about social or political activity.

  4) Since a number of mail-order, entertainment, and tourist businesses have Web sites, classroom activities can be based on authentic information. That is, rather than students' imagining the movie they would like to see during a trip to Paris, Madrid, or Rome, they can choose what is actually being shown there. In addition to using the target language, the authentic data makes it possible for them to do cross-cultural activities by comparing the French, Spanish, and Italian movie offerings with what is playing at home.

- Using electronic mail on the Internet in the target language offers students a real, as opposed to virtual, experience. When an exchange of messages can be arranged between learners and native speakers of a language, the computer establishes a context of real communication, rather than providing cues and missing information, as in the case of glosses and visuals in the virtual software described above. (See the article by Kern in this AAUSC volume.) In a recent project, American college students engaged in an e-mail correspondence with their peers at a French university, receiving messages written by the French students in the language as they used it naturally, expressing their own ideas which, by definition, were culturally authentic.[9] The American students discussed topics of interest to them, coming in contact with attitudes and ideas that they would never have discovered in any other way. The French students gave their views on American cultural imperialism, interpreted the "loi Toubon" (a code which restricts the use of English in public discourse), and explained colloquial expressions (*À la prochaine!—c'est une expression pour dire : à la prochaine fois*).[10] In some cases, students were obliged to negotiate meaning as they tried to determine the differences and similarities between French and American thinking on certain points.

These activities are just an infinitesimal sampling of the possible utilization of the computer in foreign language courses. The common denominator of all of the examples is the involvement of the student with authentic language in a truly or virtually authentic linguistic and cultural context which, according to what is currently known about cognition, adds new effectiveness to the acquisition of a foreign language and the understanding of its culture(s).

## Conclusion

At the very least, the computer and technology can increase student exposure to a foreign language and culture (or to any subject matter) outside of class; optimally they can provide the contexts that will inform meaning and create an interesting, anxiety free learning experience that will foster foreign language acquisition and cultural understanding. Achieving these positive results creates an enormous task, however, for teachers who must be computer literate and must find the time to acquire or produce materials, or must spend long hours locating appropriate Web sites (with regard to both content and level) or e-mail partners for their classes. Also, just as with any other materials, students have to be prepared to use computer materials or the Web. As mentioned in Meunier's article in this AAUSC volume, students need specific instructions for operating the hardware and for using the software, and a clear explanation of the educational task that has been assigned. Material to be used must be contextualized by pre-computer use materials and must be reused in a learning context after exposure. While the computer activity may include material that establishes the context for specific tasks, the teacher must nonetheless provide pre-listening and previewing activities so that the students will understand the relevance of the computer activity to the course content and so that their memories will be primed to assimilate the material with which they will come in contact. Task-based or information-gap activities should follow computer activity, so that students will reuse the information in personal and varied ways, thus reinforcing learning.

While little quantitative data is available to prove that computers increase the rate or depth of language acquisition, increasingly, there are studies to this effect, such as one recently reported showing that hypertext glosses with visuals on the computer, an enrichment of context, can increase comprehension (Chun & Plass 1996). (See also the articles by Bernhardt and Kamil, Kern, Beauvois, Scott, and Meunier in this volume.) There is also much anecdotal evidence, especially in the form of feedback from students and teachers, that technology has enriched and facilitated the learning process in those places in which it is currently used on a significant scale. The computer is effective because of its capacity to create and expand contexts, but its effectiveness depends on teachers who, along with competence in their field, must show enthusiasm for the subject matter and demonstrate sincere interest in and concern for their students individually and collectively.

## Notes

1. Rather than saying that words are learned *through* context, which suggests a *process* of learning vocabulary, the author's intention is to suggest that the meaning of a word cannot be appreciated when the word is presented in isolation.
2. Quoted from Quinn and Holland, 1987, p. 4, by Goodnow, Jacqueline J., and Pamela Warton, "Contexts and Cognitions: Taking a Pluralist View," in *Context and Cognition*, edited by Paul Light and George Butterworth, p. 162. London: Simon and Schuster-Harvester Wheatsheaf, 1992.

3. As opposed to the Audio-Lingual Method of the 1960s, based on repetition and memorization, today's Proficiency-Based Approach relies on the techniques of task-based learning and information-gap activities, both of which require that students take an active role in seeking and sharing new material.
4. A videodisc consists of 55,000 individually numbered frames, or about 30 minutes of motion video. Showing a sequence of frames is comparable to showing a film sequence, while showing a single frame is like showing a slide. Depending on the hardware, the videodisc image may be seen on the computer terminal or on a separate monitor. A CD-ROM can contain up to 600 megabytes of computer code or digitized visuals, audio or video.
5. I have specifically used the word "programmed" here, to emphasize that the computer has no magical powers but does only what human beings tell it to do.
6. This is not intended to suggest that the computer will make the teacher superfluous. On the contrary, with well-constructed software the computer can supply information and offer opportunities for language use, while the teacher's role becomes even more important with regard to interpretation and discussion.
7. An authoring system is a template program allowing those with no programming knowledge to plug their own content into a variety of formats in order to give their students computer materials customized to their syllabus and ability level.
8. The list of software suggests the ways in which the computer can function to further real language learning and is in no way intended to be an exhaustive list or catalog of available materials or possible uses.
9. During the Spring Semester 1996, an intermediate French class exchanged messages informally, but under the guidance of their teaching assistant, with a group of students from the *École Normale Supérieure* in Paris. The teaching assistant and the course head analyzed the messages for content, but no quantitative studies were done and no official report was published.
10. Translation: "Till next time."

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Clément, Richard. 1980. Ethnicity, Contact and Communicative Competence in a Second Language. *In Language: Social Psychological Perspectives,* edited by H. Giles, W. P. Robinson, and P. M. Smith, 147–54. Oxford: Pergamon.

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Dörnyei, Zoltán. 1990a. Analysis of Motivation Components in Foreign Language Learning. Paper presented at the Ninth World Congress of Applied Linguistics, Greece.

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Allen, Wendy, Keith Anderson, and Léon Narváez. 1992. Foreign Languages Across the Curriculum: The Applied Foreign Language Component. *Foreign Language Annals* 25: 11–19.

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### Edited Book (16.46):

Byrnes, Heidi, and Michael Canale, eds. 1987. *Defining and Developing Proficiency: Guidelines, Implementations, and Concepts.* Lincolnwood, IL.: National Textbook.

### Article in an Edited Book

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### Book in a Series (16.86)

Magnan, Sally Sieloff, ed. 1991. *Challenges in the 1990s for College Foreign Language Programs.* AAUSC Issues in Language Program Direction. Boston: Heinle & Heinle.

Johnson, Carl L. 1944. *Professor Longfellow at Harvard.* Studies in Literature and Philology, vol. 5. Eugene: University of Oregon Press.

### Article in Edited Book that Is Part of a Series

Lee, James F., and Bill VanPatten. 1991. The Question of Language Program Direction Is Academic. In *Challenges in the 1990s for College Foreign Language Programs,* edited by Sally Sieloff Magnan, 113–27. AAUSC Issues in Language Program Direction. Boston: Heinle & Heinle.

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